

Three-time Hugo Award Nominee

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ABORIGINAL SCIENCE FICTION

Tales of the Human Kind, Issue Nos. 53 & 54

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***Mission
of Gravity
Revisited***

Stories by:

**Patricia
Anthony**

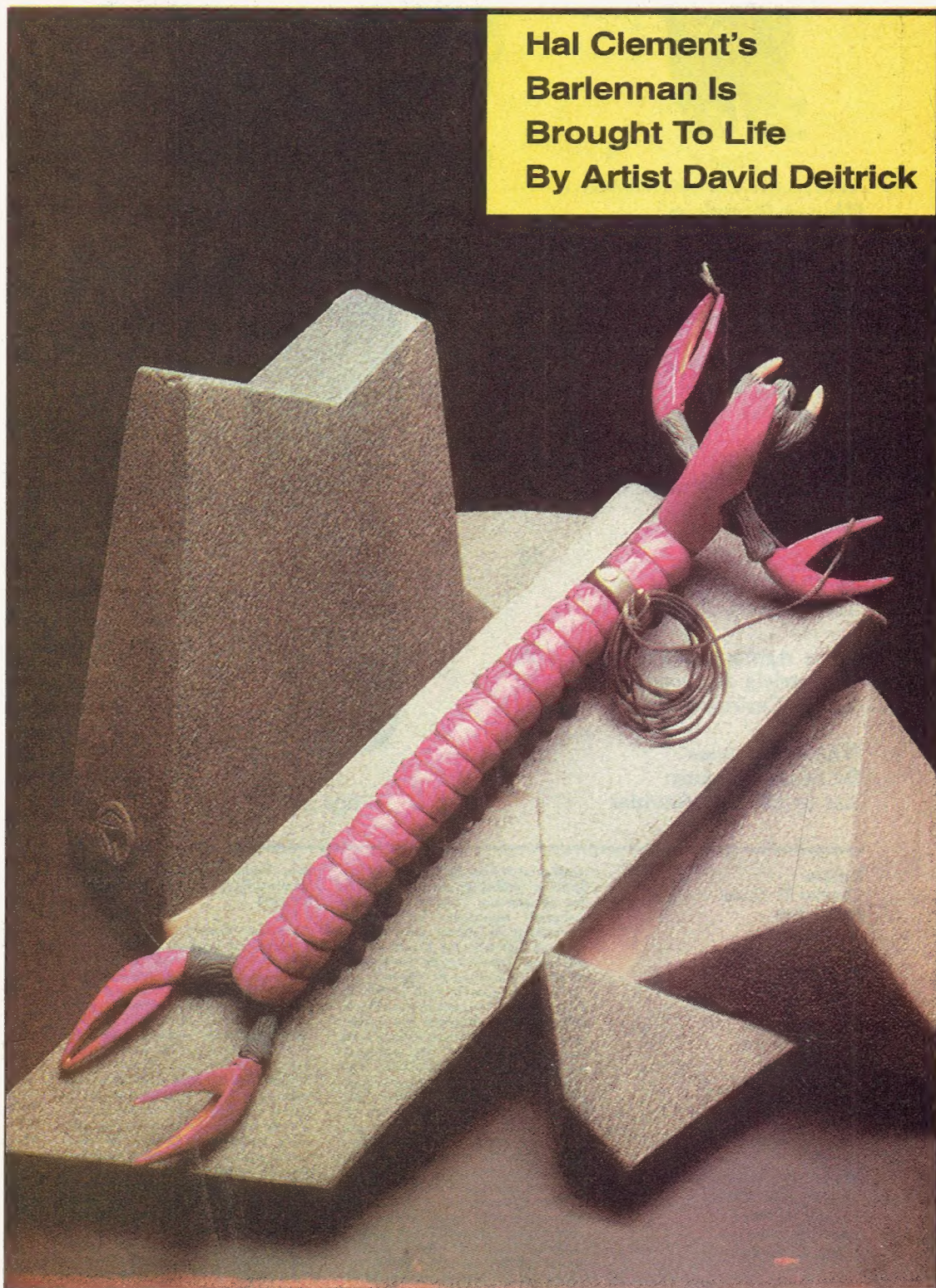
**Kristine
Kathryn
Rusch**

**Sean
Williams**

**Karl
Schroeder
and more ...**

**Two Book
Reviews**

**Hal Clement's
Barlennan Is
Brought To Life
By Artist David Deitrick**



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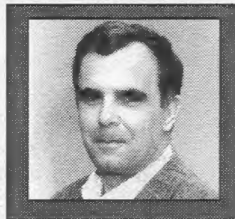
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No, You Didn't Miss any Issues, Merry Christmas ... 1997



Imagine you are in Australia. That's where the 1999 World Science Fiction Convention will be held, and it's where Sean Williams, the author of "White Christmas," resides. It's cold Down Under when it's hot here, and vice versa, so Christmas in Australia is rarely white. Now that you are thinking Australian, mates, welcome to our Christmas issue, late if you're a stickler, or early if you're an optimist.

Some things are more frustrating than others. The past issue, labeled Fall 1996 — which actually arrived most places in time for the New Year celebrations — being one.

The magazine was delayed a bit because of the Worldcon, but was ready near the end of October. A handful of delays occurred and our management firm in Canada wasn't able to cope with them.

This left us in a bit of a dilemma, since Pawn Press was supposed to physically produce the issues after we have completed the editorial work. Pawn Press hasn't made that happen the way it was supposed to, until finally, after many many delays, we decided it was time to end that arrangement. Maybe we should have acted more quickly, but we wanted to give that company every chance — at least until it became more than obvious that it wasn't about to happen.

Because of the delay, we've had to regroup and reorganize how we do things. Hence the Winter 1996 issue has become the Winter 1997 issue. (We could have called it the Fall 1997 issue, but the reorganization is ongoing and we wanted to make sure we don't miss any more schedules, so we decided to wish you an early merry Christmas, because we missed the last one. This won't affect any subscriptions because we use an issue number system for subs. We promise to be more regular.

On the Web

Aboriginal Science Fiction is now on the World Wide Web. Our home page can be found at www.aboriginalsf.com and can be used to send us a change of address, to renew, to order back issues, to send letters to the editor, to subscribe for a friend, etc.

Please visit it and let us know what you think.

Needless to say, we are not putting the whole magazine on the Web. Besides "going on the Web" has become a euphemism (in the magazine industry) for shutting down the print operation and, for all practical purposes, dying. We have no intention of taking that route. We hope and plan to keep the print version of *Aboriginal* alive and going well into the next millennium.

Besides, there still isn't a reliable method of generating enough revenue with a pure Web magazine. Far too many Internet jockeys are used to getting everything free. And if there is no way to generate income, there is no way to pay artists and writers.

Some day the Web might provide a reliable way to generate direct income, but I don't see it happening in the immediate future.

We will post occasional bits of information on the Web site, which will allow us to keep in touch with subscribers and readers more frequently than our quarterly schedule ordinarily would.

Please feel free to write, but remember, we still have a tiny clerical staff, about 10 percent of a person, so complicated questions will take time.

Sending us EMail via the Web site is probably the quickest and easiest way of communicating change of addresses, queries, etc.

Looking back at a variety of fads that have swept this country, I'd guess that when the major corporations (which are investing big bucks to get a presence on the web) force

the Internet into a commercial situation where everything has a price tag, you'll see a sudden drop in participation and Web surfers looking for freebies will go the way of the CB fad of a decade ago.

The internet will still be used, but it will be more expensive and less of a plaything (except for those who are willing to pay).

God's Fires:

Patricia Anthony's latest novel, *God's Fires* (371 pp., \$22.95), is out from Ace and it is her best so far. The story details the consequences the crash landing of a UFO bring upon a small village in Portugal during the Inquisition.

The tale is told primarily from the point of view of Father Manoel Pessoa, a Jesuit Inquisitor, who is obsessed with his love for a converted Jewess in the village. His struggle juggling his beliefs, his oath to the church, his love of the simple villagers, and his rational approach to the childlike creatures who survived of the crash is undone by the unrelenting purge of the Inquisition, embodied in Monsignor Inquisitor-General Gomes.

Are the creatures from heaven or hell? Did they have anything to do with a village child's claim of an immaculate conception? Or the visions of the Virgin Mary seen by another girl.

And what of the simple King, who comes upon the crashed ship and is the only one who can converse with God?

The book is a hearty gumbo of savory human emotions, devices and failings, and garnished with the horror of an implacable code of belief forced upon them all.

The anthology

A complete collection of Pat's short stories (28 in all, with three new stories) is also now available. *Eating Memories* can be ordered from us or through our web site. □

The Engine of Recall

By Karl Schroeder

Art by Jon Foster

"Mr. Modest? Is your ghost for hire?" The spell of Leo Modest's self-indulgence broke. Annoyed, he turned from the plate of oysters he'd been sampling and looked his two visitors up and down. "What?" he said.

"Mind if we join you?" asked one of the men. He was an ascetic, worried-looking fellow. Leo shrugged.

"Dr. Alan Tarski." Leo shook the thin hand. The other man grinned in a falsely friendly manner and put his hand out too. "Will Kapleau."

"Hmmp." Leo dropped his gaze to the plate and began bobbing his two-tined fork over it, searching for the next morsel. "What do you want with my ghost?" he asked distractedly. "I hardly use it."

"The answer to that is right behind you," said Tarski.

Leo had chosen a table next to the huge picture window that dominated this restaurant. It ran floor-to-ceiling and stretched sixty feet, and the management had assured him it was real, not a TV screen. It gave an excellent view of comet Blye and various colony cylinders and factory complexes orbiting it.

He followed Tarski's gaze past all that, to the rain-bow-hued curls and shells of nebula that enshrouded the pulsar named Cobra. As he looked, the pinpoint in the core of the nebula brightened into a blazing sun and quickly faded again — as it did every few seconds, as it had for millions of years.

This comet was as close as anybody got to Cobra. If the pulsar had ever had planets, they had been incinerated aeons ago. Comet Blye was an interstellar wanderer and had never approached within thirty AU of the pulsar. It was the nearest thing to a world here; anyway, it would do for Leo until a better destination presented itself.

"It's pretty," he said. Turning back to his visitors, he said, "You want my software ghost as a pilot? How'd you find me?"

"Another veteran spotted you," said Kapleau eagerly. "He said you're the best. We'll need the best to do a close orbit around Cobra for us."

Leo laughed. "Who's 'us'? The Dangerous Sports Club? Do you know what you're asking?"

"We do," said Tarski. He nervously keyed an order into the tabletop; Leo noticed it was for a drink he hadn't tried yet. "We study Cobra. I'm the acting director of the Cobra Research Group here at Blye. We need data from a close orbit of the pulsar, and you're the best freelance pilot here. We're wondering if you want the job."

The oysters were forgotten now. Leo looked from one man to the other. "What do you want a pilot for, live or ghost? It doesn't sound like much of a job; why not drop a dumb probe on the trajectory and pick it up

on the other side? I mean, the radiation from that star blows hell out of anything within ten AU. I'd just toss cheap probes in until one of them came out the other side."

"A probe won't do for this job," said Tarski. "You'd be piloting a real ship, with full amenities, and we'd be expecting you to come out the other side intact."

"What the hell? It makes no sense."

Tarski's drink arrived. He sipped it delicately. "Mr. Modest, if we were able to convince you that only a conscious pilot, and not a computer, could do the job, would you consider it?"

"Ha!" Leo took Tarski's drink and downed it in one gulp. "I'll consider anything before I turn it down. Go ahead: convince me. — That's good, try this." Leo put his own tumbler in front of Tarski.

Kapleau looked at Tarski. Tarski looked at his empty glass. Finally Kapleau cleared his throat and said, "There's one very good reason why we'd want your ghost to come out the other side intact, Modest." The searchlight beam of Cobra swept past again. The glow lit Kapleau's face a ghastly white. "We'd be going with it," he said. "Our real, physical selves."

Later, Leo drifted through the freefall area of Roth Colony, thinking about Tarski's offer. They were to meet again tonight, and he would give his answer. Below him now, vast banks of cloud reflected the fusion lamps at the colony axis. Above, he had much the same view. The air swarmed with hang gliders and people like Leo, wearing footwings, coming and going between buildings suspended in the sky. He flapped lazily along, watching the legs of some young women as they passed. People gave him a wide berth; Leo was a large man and moved through freefall like a battleship.

Leo spotted a spherical building apparently resting on the lip of a cloud bank. He flapped stolidly in its direction. Of course he was going to show up for the meeting, if only to find out what was so pressing at Cobra that it demanded human presence. And he did need the work; Blye was as far as his money had been able to get him this time. But he didn't have to go in unprepared.

The Memory Library's surface gleamed like spilled oil. People landed or embarked delicately from the branches of trees that grew out of its main doors. Inside, he headed straight to the chamber known mysteriously as the "Chinese Room."

Leo had come here to collect a ghost. Some people — those rich enough, and those addicted — lived via their ghosts, having tens or hundreds out collecting



experience all the time. Leo preferred what he could get with his own hands, eyes, and lips. He'd made this ghost only because he couldn't afford to visit the planet Revus in person.

The "Chinese Room" was packed with people having their ghosts' memories implanted in them. He hesitated a moment in the doorway — the sight was familiar. People sat silently. Here and there one raised the headset from his or her brow and emerged from trance smiling. The gesture was familiar to Leo, the smile was not; he remembered rooms like this full of men and women in uniform, and their expressions when coming out from under the helmets had been of horror or sadness.

Leo shook off a sudden feeling of melancholy. He found a free harness and adjusted the headset to fit his large skull. A warm muzziness descended on him, then the machine registered his account and sought out the memory file.

The ghost had returned the night before, but Leo hadn't had time to get down here until now. More important things, like drinking, sleeping, and eating, had intervened. Now, though, he needed to find out what his trip to Revus had been like.

Ten minutes later, Leo left the Library. The Revus ghost had cost him 15,000 Labour Units; a physical visit would have cost more like half a million. He'd paid another 50 Units to have an Agent ghost research the Cobra Institute, and now as he glided towards a cluster of restaurants, he pondered everything that had happened.

Revus was a habitable world, covered with rolling hills and shallow, sinuous seas. Its primary vegetation was grass, and while human cities had sprung up all over the world in the past century, Leo had come to see something else.

He had made this software ghost four days ago. Minutes after its creation, its pattern had been beamed through superspace to Revus and activated. Two hours after that, the robot his ghost had rented walked to the lip of a large excavation under the warm Revus sun. Men and women in tough shorts or sarongs laboured down there, brushing delicately at the outlines of ancient buildings.

"The Aknitari lived here," said a voice in his ear. Leo turned to find a pretty, frank-eyed woman smiling up at him. She wore the same kind of dusty shorts as the workers below. Her outline shimmered briefly; she, too, was a ghost, projecting the holographic image of its owner on the surface of a robot.

"I'm Leo," he said, offering his hand. "Where do you go around here to celebrate, when you find something?"

She laughed. "That's a fresh question!" She turned to gaze out over the excavation. "We have our places. My name's Galil Aurean. I'm the head curator here, but I like to ghost and serve as guide too. Call it a perq."

He raised an eyebrow. "Not an eccentricity?"

"It lets me watch other people discover the place for the first time. Reminds me of what discovery's all about."

"Yeah?" He hooked his ghost-hair back with one thumb. "What's that?"

"Well, look at you. You must have a keen interest in the Aknitari, Leo. You probably paid a lot for this visit, when you could have just taken the VR tour."

He nodded, guardedly. "I've always wanted to meet an Aknitari." Let her think he was just curious; Leo had learned to keep his obsession with the aliens to himself.

But Aurean sighed with open longing. "Me too." She walked away along the lip of the pit. "Come on! I'll give you the tour."

They wandered the ruins for hours. She delighted in showing off the oddities in the pits, and Leo followed along like a child at a fair. He really couldn't hide his deep fascination with the ancient aliens. Aurean sensed his excitement, and it did seem to kindle a flame of enthusiasm in her.

This dig, like most, held only a few outlines of buildings, a bone or two, and the corroded remains of incomprehensible machines. There was just enough here to tantalize, and Leo found himself sharing old fantasies and legends about the aliens with Aurean. It was all speculation, for nothing was really known of the Aknitari, but somehow that made the stories better.

They dreamed aloud of colourful cities and starships, populated by a peaceful and wise race whose culture, languages, origin, and demise were obscure. In the shade of that mystery, Leo could forget, if only for a few hours, the legacy of pain in his own, human past.

As the sun set over the ruins, he said, "I'd like to stay here. Sleep under the stars."

"Really?" She shot him a complicitous smile. "I've done it."

"What did you dream about?"

She looked at him. "What do *you* think I dreamed about?"

He sighed. "I don't know. I dream about the war."

"War? Hmm. You dream about it; do you talk about it?"

He shrugged. "Not now. But another dream ... would be nice."

She put her hand on his arm. The robot touched metal to metal, but his ghost felt her warm skin on his. "You have my permission," she said seriously, "to sleep under the stars here. And dream of something ... else."

They were lovers by moonrise. Their robots stood abandoned, dew beading on their metal limbs, while the ghosts of Leo and Galil Aurean made a nest, invisible to all, in Virtual Reality.

These memories, and more, were now Leo's for life.

The Roth Institute was a collection of low, grass-covered buildings on the edge of a forest. Leo smelled pine and fresh water as he came up the front walk from the subway kiosk. Kapleau was waiting for him at the doors.

"Glad you could come, glad you could come," he enthused, pumping Leo's hand. "This way; we're all set to begin."

Leo sighed, following reluctantly. The scientist led him to a darkened screening room whose far wall was

eclipsed by a large hologram of Cobra. Lounging in chairs below the multi-hued star were several men of Tarski's ilk: severe and focused. Leo eyed them as he levered himself into a leather-bound armchair.

"Good to see you," said Tarski as he stood up. He made to introduce the others, but Leo waved a hand impatiently.

"Get on with it," he suggested. "What's the big deal about Cobra?"

"Well ..." Tarski made to sit down, thought better, and pointed at the hologram overhead. "Cobra is a rarity among collapsed stars, Leo. It was right on the edge of the mass limit when it collapsed. Most massive stars that supernova collapse into neutron stars. This phase normally only lasts a few seconds before the star converts by relativistic combustion into a quark star, composed of 'strange' matter. Most supernova remnants are quark stars.

"Cobra got stuck in the neutron star stage because of its low mass. Eventually it'll accumulate enough material from its companion to move to quark star form, but that won't be for millions of years. It could be pushed over the edge by any addition of quark matter, too, but there just isn't any in this system. So for all intents and purposes, Cobra is a stable neutron star. It's interesting for that reason, but it became more than just interesting when we found this."

Tarski touched the arm of his chair, replacing the holo of the two stars with one showing an indistinct smudge in false colour on a yellow background. Leo heard or sensed the others in the room leaning forward or sitting straighter. Nobody spoke for a moment.

"What's that?" he asked finally, as he supposed he'd been expected to.

"We've been observing Cobra for years," said Tarski. "Watching the dynamics of the starquakes, the infall from its stellar companion, and the radiant beam. We weren't looking for anything like this. We hardly believed it when we first saw it."

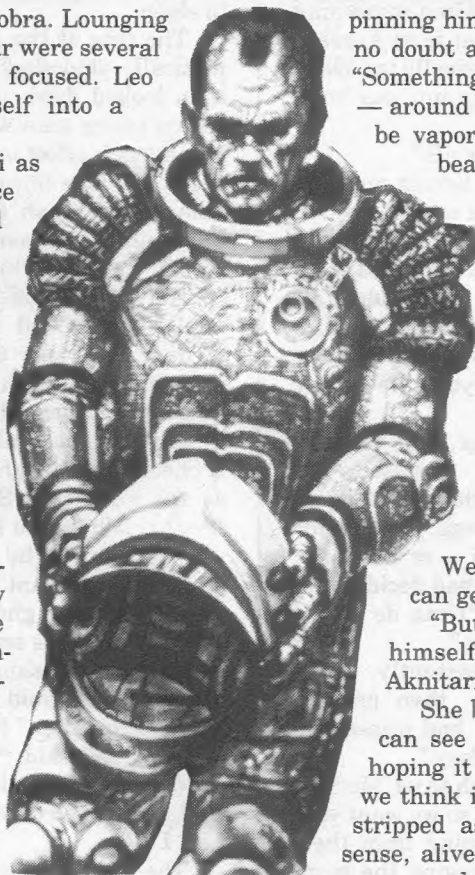
"Yeah, yeah." Leo waved his hand. "Forget the melodrama. What is it?"

"Perhaps it would be better if I let the expert on this subject take over, now that she's arrived." Tarski waved to the door, which Leo realized had just opened.

"Sorry I'm late," said Galil Aurean as she trotted down to the level of the couches. "Hello," she said to Leo, obviously not recognizing him.

"Ah huh," Leo managed to say. He felt winded suddenly, as if he'd just run a mile.

"When you showed me the holos, I didn't believe it either," she said to Tarski. There was no holographic shimmer around Aurean this time. She turned to Leo,



pinning him with her very real gaze. "But there's no doubt at all," she said. He barely heard her. "Something is flying — orbiting is the wrong word — around Cobra. It is very close, close enough to be vaporized if it gets caught in the radiant beam. Somehow, it steers clear of the infalling debris and manages to avoid the beam. Only an intelligent, self-powered object could do this."

Leo began to recover his composure. *Intelligent object?* "Wait a minute —" he began. He wanted to ask what it was, but was suddenly afraid to. "How — how big is it?"

Aurean nodded as though he'd asked the right question. "Under a kilometer in diameter. That's all we really know. It's also massive — would have to be, to survive in there.

We won't know any more about it until we can get close."

"But you think ..." He decided to commit himself to the thought: "You think it's Aknitari."

She blinked, then grinned. "You're quick. I can see why Tarski wants you." He flushed, hoping it wouldn't be visible in the dark. "Yes, we think it's Aknitari. And not just a ruin, or a stripped asteroid, but a *device* which is, in a sense, alive. Alive even after all this time." Her eyes were shining.

"And we want to go in and get it," said Kapleau.

Leo let all his breath out in a whoosh, focusing on the strange blob overhead. "You don't even know what it looks like, or what it's made of. You say it avoids the radiation beam; what's to prevent it from avoiding us?"

Aurean looked to Tarski, who shook his head slightly. "We have a solution," she said to Leo.

"What about our ship? It's going to have to be pretty big — and tough. What do you have?"

Tarski changed the holo to show a mirrored egg-shape hanging in space. There were no visual referents to show its size, but Leo recognized the profile. "Who gave you a battleship?"

"The *Pall*," said Tarski. "It's decommissioned, which is how we could buy it — not cheaply, I might add. It's similar to the type you piloted against the Individualist uprising of '64, am I correct?" Tarski's hands were steepled in front of him, and his face was in shadow. The leather armchair began to feel confining to Leo. He glanced at Aurean, but her face was neutral.

"Yeah. You do know a lot about me," he said. His Agent this afternoon had discovered no link between the Institute and the military. He looked at Aurean again. She must be the link.

"We know what kind of piloting background you have, and that you're good." Tarski waved his hand dismissively. "That's all we need to know. Are you with us? This ship is big enough to collect the anomaly — that's what we're calling it, by the way — and bring it home. It's also strong enough to withstand the tidal forces at the orbits we'll be taking."

He thought about it. They were holding something back, but maybe he'd be able learn what from Aurean. "So you want my ghost to take you physically to Cobra, where you will try to reel this *anomaly* into our hold, and then we scam back here?"

Tarski nodded. "That's right. That's all."

"Why your physical selves? You're letting me send a ghost, after all. Why don't you do the same?"

Tarski and Kapleau exchanged an almost unnoticeable glance. Kapleau smiled easily and said, "We don't know what an Aknitari machine is capable of. If we board it — and we might have to — we don't think we should trust our robots to do it, even if they do have our ghosts in them. You're different, you'll be on the bridge for the duration."

"Hmmpf." Kapleau was a bad liar, Leo decided. Still, he'd let them get away with it — because to tell the truth, there was probably nothing they could say at this point to get him to turn them down. The instant he'd learned the anomaly was Aknitari — or was it the instant Aurean had walked in? — Leo had decided. No need to let them know that, though. "I can do it," he said. "But not for under twenty million."

"Twenty-five million," Tarski said instantly.

Leo opened his mouth to haggle, then paused, brows knitting as he realized Tarski had *upped* the price, not lowered it. "Oh," he said. "Okay."

Tarski laughed. "It means that much to us, Modest. Price is no object. You're the best pilot, so we want you. It's that simple." The others were rising from their seats. Tarski flipped the holo off, plunging the room further into darkness.

"When do we do it?" Leo said to the moving shadows.

"Two days, Modest. We're ready. We just need to get your ghost in condition, and that won't take long."

"I suppose not." By the light of the opening door he made out Aurean's slim form, and made his way after her. "Sounds fine," he shot over his shoulder as he elbowed aside one of the other scientists, and came up behind the curator.

He experienced a delicious moment of indecision as they stepped into the well-lit corridor together. Dalliances between ghosts were common enough, and there was always the chance of meeting the original afterwards. That was bound to be awkward, and — had Leo not been in the situation before — he might have found himself at a loss for words now. Before they turned their separate ways, he touched Aurean's elbow and, leaning close, said, "You might want to attend to your mail from Revus."

Surprised, she turned, a question on her lips. Leo nodded brusquely and walked away.

Leo was still awake late that night when the doorbell chimed. He sat in his bathrobe in the living room of a rented apartment, worrying over some flight plans. He hadn't had time to try the simulations himself, but had given Tarski a ghost. The ghost had itself been split into several clones and its time-sense distorted, so Leo remembered seven days of intensive flight simulation around Cobra. Recurring images of fire and deathly light made him too uneasy

to sleep.

The ring at the door didn't surprise him; he automatically smoothed back his hair, started to smile, then looked down at himself. He was no longer the strong young man whose grey eyes had such a usefully magnetic effect on others. He knew without tracing them the deep lines around his mouth and the thickening of his flesh from self-indulgence. The need to bury himself in sensation was as ineradicable as a scar. It had made him ugly.

He flinched his frown away and opened the door. "Hello," said Galil Aurean, somewhat bashfully. Leo smiled, then saw the glimmer of holographic light around her blue silk skirt. It wasn't really her; she had sent a ghost instead.

He held the smile gallantly and waved her inside. "I checked on my ghosts, like you suggested," she said as she walked in. She looked around her, eyes wide. "So this is how you live."

"Not really," he said. "It's rented." That she had sent a ghost meant she was not personally interested in him. One sent ghosts to end relationships cleanly, to do snubs or make scenes; in short, to do the dirty work. Leo stifled his disappointment and moved to the bar. "I thought you should know," he said. "After all, we'll be working together." He began to mix himself a martini.

"Yes," she said. She seemed at a loss for words, and sat down on the couch. When he came over and sat as well, she looked down, knit her hands, and said, "Look, Leo, I —"

The doorbell rang again. Leo and Galil looked at one another in annoyance. Then he said, "Moment, please," and went to answer it.

Galil Aurean was standing in the hallway outside. No shimmer: this was the real one. "Sorry," she said. "Look, I just ... sorry." She slipped past him inside.

The two Galils blinked at one another for a moment. Then the first one, the ghost, flickered and vanished, leaving behind a featureless white robot. It stood quickly and walked out.

Leo watched it go, arms crossed. The real Galil Aurean closed the door gently behind it. "That was quite an entrance," he said.

She winced. "I changed my mind, but it was too late. I owed you more than a brush-off. Especially because of the —" She stopped herself. "Leo, everything was fine until this afternoon."

"Until I came along?" He smirked and handed her the martini. "I seem to remember you liked these." He went to make himself one.

"I have something to tell you," she said. "About the mission."

"You're going along, aren't you?"

"It's not that. Although I appreciate your concern."

They sat together, much as he and the ghost had moments before. "Nobody knows better than I how dangerous this is going to be," he said. "Take my advice: ghost it. Your chances of getting killed otherwise are pretty good."

"I can't. I did make an insurance ghost of myself, though; I have enough for a new body if, you know, mine is destroyed ..."

He laughed harshly. "Backup copies are no good. I

know, we used 'em in the war. Ghosts aren't your complete self, just a partial cognitive map. *They* don't have your memories, just your habits. Only *you* have real memories. Leaving a ghost behind as insurance is useless. If you die you lose the experiences that ground your identity. Who cares if the backup preserves the current you, if you lose the rest?"

"Leo, I don't want to hear it! It's too late for me to back out. Just listen for a minute, will you?" He glowered, but shut up.

"Tarski's not getting you to ghost pilot just out of concern for your life, Leo. And we're not going along physically just because of some uncertainty about machine reliability."

"Go on." He sat back, sipping quietly.

"We can't send our ghosts along, and couldn't bring you physically, for the same reason," she said. "Because we're not coming back here with the anomaly."

It wasn't one of the alternatives he'd considered, but Leo had to admit it fit the facts. He nodded. "They're going to wipe my ghost afterwards, right?"

"Yes." She cradled her drink, not looking at him. "Tarski and the others owe big to the neo-Individualists, who've supported the Institute for years. They want the anomaly badly — badly enough to kill for, certainly badly enough to use their connections to force Tarski into this scheme."

"What about you?" he said quietly. "How did they get you?"

"Simple." She laughed humourlessly. "They told me about the anomaly, then told me it was going to be given to the Individualists whether I helped them or not. At least if I go along I have the chance of examining it before they hand it over."

"They think it's an angel, don't they?" Leo chuckled. "I can see why, the way it flutters around Cobra like a moth. Good propaganda material."

"But only as long as they preserve its mystery," she said. "They want it, but they need to control it. That's why they can't just leave it alone."

"Tarski and Kapleau have sold out, but they agree with me we have to study it first. So I'm going along."

"And I'm not?" He stood up suddenly. "The bastards want to cheat me of the experience!" He paced, shrugging his shoulders angrily.

"Yes. Until this afternoon, Leo, I agreed with them. Our pilot's ghost was expendable. He, like everyone else, would see us leave but not return. Nobody would know we'd actually stolen the anomaly until it was too late. He wouldn't get his memories from the ghost, but what of it?"

She put her drink down and came to him. "So I had to know, Leo, were you serious there on Revus? Do the Aknitari mean so much to you?"

"They did, once." He took her hand, carefully. "Childhood enthusiasms die, you know. But what they were to me once — like dreams of a former life, something sacred, I mean — that hasn't changed. I fought the Individualists because I thought they were enemies of what's really sacred: experience, and memory. You were right to tell me this, Galil. I wouldn't have taken losing this ghost easily."

Her shoulders slumped, and tension drained from her face. "You are the same man I met on Revus," she said. "I'm glad."

"I can't take the job now," he grumbled. "Worse, I'll have to tell the police about this."

She shook her head. "Tarski and the others will deny the neo-Individualist thing. So will I, for that matter. I don't want yet another group involved in this thing. The government's just as likely to use the anomaly to serve its own purpose."

"So what's the alternative?" he burst out. "I'm out of it, you find yourself another pilot, and where does that leave me?"

Galil smiled ironically. "I hoped you'd react like that. I could just say, 'Too bad, Leo,' and leave it at that, you know. But then, I could have just not told you to begin with."

"What's your point?" he growled. He tossed back his drink and went to pour another.

"There's an alternative," she said. Galil curled up on the couch, watching him attentively. He thought about that, hiding behind the mixer, but finally shrugged at her helplessly.

"Tell me."

"You pilot the ship, but not as a ghost."

He laughed. "You want to smuggle me aboard physically?"

She nodded. "The software signal won't wipe a real pilot, and since you'll be on the bridge and really in control, you'll be able to bring us back."

"... Or to Revus, say?"

She looked innocent.

"Okay." He started to pour himself a drink, thought better, and took the whole jug with him. He sat next to her. "How are you going to get me on board physically without them finding out?"

"Leave it to me."

"And what do I get out of it?"

She looked at him levelly. "You help save the most important Aknitari treasure we've ever found."

Leo tilted back the jug and drank. She had him figured out pretty well, he decided. "You're upping the ante something fierce," he said. "If it was dangerous before, this will double it. Or triple it."

"Scared?"

He put down the jug and leaned in close to her. "Of course. But I'll do it. My question right now is" — he ran his fingers up her arm — "are *you* scared?"

"Of you, Mr. Modest?" She put her arms around his neck, sighing in resignation. "It's far too late for that, isn't it?"

He watched the shuttle approach from a real window near the command center. Leo wore a helmetless space suit against the cold; the battleship was powered down. It would have been suspicious for him to turn any of the systems on, so he had spent his time in frosted corridors lit only by trouble lights, waiting. The last thirty hours had not been easy.

Leo knew this kind of ship too well. It was impossible to escape memories of the war here; he regretted accepting the job for that reason, not because of the

danger. He had joked with Aurean on the way over here, but then she'd left, and without an audience Leo could not indulge himself in extravagant gestures. He was left with his thoughts.

The shuttle containing Aurean and the others turned and began braking. It would dock shortly. Time for him to hide.

Leo drifted into the command centre. The half-open clam shapes of the gravitics-beds arrayed in arcs here would normally be full of reclining men whose eyes and ears were hidden beneath chrome helmets, their minds one with the sensors and weapons of the ship. Holograms and hissing voices should be flickering around him, but he saw only the mist of his own breath as he opened the g-bed he'd chosen. He remembered one ship he'd served on, where the custom was to put a coin on your bed before going into battle. Whoever found his coin first afterwards won a drink.

He climbed in, glancing out once at the cold stillness. He'd found his coin exactly once. It had been embedded in the metal ceiling. Leo shivered and lowered the lid.

He had stencilled a sign on the shell of the bed: INTERNAL FIRE. SEALED. The bed's outside status lights were blinded, but Leo had left himself full access to the ship's systems.

He pulled on his command helmet and let partial ghosts of his personality split off to inhabit the many subsystems of the ship. Computers throughout the metal body took on Leo's instincts for acuity and movement, replacing a human crew. None were sentient; they were enhanced agents of Leo himself, servants so familiar with their master that they need never consult with him. One of them gave him a feed to Aurean's headset. "Ready," he told her.

He heard a faint, shuddering sigh from her. "We're docked," said Tarski's voice in his other ear. "Leo, are you awake?"

If he and Aurean had rigged it right, Tarski's readouts should show Leo to be a ghost, mapped into the ship's computer. "Right here," said Leo laconically. The ghost would sound and act like Leo himself; carrying out this pretence was easy. "You all brought your barf bags and prayer books, I hope?"

"Don't joke, please, Leo," said Aurean. "It's easy for you: you're not really here."

He smiled in complicity. "True," he said. "Find your stations and cocoon yourselves. We're going to pull a lot of gees shortly."

The shuttle disengaged. Humming the *Ride of the Valkyries*, he set the *Pall* in motion.

The ship was now his body. His consciousness was layered with overlapping shades, each whispering its status in his voice. Leo loved the sensuality of piloting; the ship was a perfectly responsive body, requiring no effort to move through all its degrees. His ghosts saw and interpreted the whole electromagnetic spectrum, giving him beautiful second sight. He could hear the faint vapour of solar wind from Cobra sighing around him. Momentarily, he forgot his passengers.

But as he took the ship through its short super-space hop to the vicinity of Cobra's companion star, Leo was reminded of other flights in ships like this.

There were too many such memories; Leo had only been a military pilot for two years, but the weight of a decade of war oppressed his memory. He had lived and relived horrors he had never prepared for; the pre-war Leo had been an innocent. At some point in it all he had stopped merely flying, and begun fleeing. He had been running ever since, his memories pursuing him everywhere except into the refuge of his five senses, and the refuge of his daydreams of Aknitari peace and wisdom.

So it seemed that the hands of many ghosts reached with his to grasp space-time and draw the *Pall* into Cobra's knot of fire. More voices than Leo's own echoed in his ears, and those voices were of men and women who were truly dead.

The mist of virtual particles around the ship decided their reality, and a blazing wall of sun-fire appeared in front of him. The light and heat were overwhelming, and the roar of the solar wind deafened him. Instinct and old training took hold: Leo roared back, reaching for nonexistent weapons through his ghosts, though he knew he had not stumbled into a battle.

"Leo!" Aurean and Tarski shouted simultaneously.

He shut down the interface for a second to get his bearings. "Tone it down, will you?" he snapped. "I'm fine." He had not lost control of the ship; they were already coasting into their planned close orbit around the companion star. Even so, Leo's stomach was fluttering with unexpected nervousness. He damped the sensors down to an acceptable level and peered through the stellar corona, hunting for Cobra.

The neutron star was behind the horizon, but evidence of it was everywhere — in the distorted, shocked pyres of stellar prominences and gusts of hard radiation pouring from malformed sunspots like tortured mouths. The sky of the star was alive with whipped scarves of light from tidal upheavals.

"Hell," shouted Leo, "you people are insane! This place will eat us alive."

"Shut up," said Galil tensely. In Leo's other ear, Tarski asked, "Are you saying it can't be done, Leo? Should we turn back?"

He thought about it while he watched a line of brightness on the horizon thicken into a band of churning fire. The *Pall* wasn't feeling the heat yet. They had full power and the flight plan was simplicity itself — as simple as stepping off a cliff.

He had to admit it wasn't Cobra that frightened him, but the intensity of remembrance. This place, the sights and sounds, was so like a battle he'd ghosted and remembered. He suddenly recalled seeing a cloud of human bodies like struggling midges erupt from the side of a shattered troop-craft.

He had seconds to decide whether to abort. That bright wall of fire on the horizon was resolving into thunderheads of radiation-blasted stellar material, and a ring of light like the eye of the devil was rising beyond it.

He was trapped. Leo had lied to Galil. His wandering might originally have been to find something nebulous, like the Aknitari. But after the war he had wandered not to find, but to escape. To avoid facing memory. And it had followed him here.

He reached to abort as thunderheads reared up and passed to either side and, through the cleft, Cobra appeared. In that vortex, in the very immolation of heat, some Aknitari machine was dancing. It had spun and glided there since before Leo's ancestors had invented war. As he thought this, Leo closed his fists and let the moment pass.

They were now committed to their trajectory.

"Here we go," he said to his passengers. His voice sounded calm to him now. Cobra's whirlpool stood overhead, reaching in impossible size to the zenith. And ahead of the *Pall*, the horizon itself lifted in plateaus and curtains of light, ascending like Jacob's ladder to touch and join that vast spiral. Leo felt the call of Cobra's gravity and let the *Pall* rise as well, steering only to keep outside the core of the ladder.

For a while he was completely absorbed in piloting. When he finally had a few instants of grace, he convened the memories of all his shipboard ghosts. It was as if he had flown this exact course many times, now; this star was now familiar territory. He had also watched Galil in her g-bed these last minutes. She'd hugged herself, gritting her teeth with tears starting at the edges of her shut eyes, and a part of Leo had descended to murmur comfort in her ear. Her left hand had reached out, fingers wide, to touch him and come up against the soft resilience of the bed's force fields. He had wanted to take that hand, and could not. But, "I am here," he had said.

They were accelerating. With sensors battle-damped, Leo saw Cobra's approaching accretion disk as a torus of light, much bigger than a planet, turning slowly at its periphery, with dizzying speed further in. Only the outside edges of the ring were visible to the human eye; near the neutron star only gamma rays were given off. Intense beams of radiation flickered from the poles of the pulsar, thin and bright as lasers.

Leo let the *Pall* be drawn into the outermost ring, and suddenly time seemed to speed up: they were pulled in faster and faster to fall turning within radiant and iridescent streamers of cloud, in a long arc into the inner rings.

Leo relinquished command to a ghost whose time sense was accelerated. The *Pall* shot through galleries and pavilions of fire, corkscrewing around thickenings of gas and ducking currents that threatened to pull them down. Leo felt the engines firing in seemingly random bursts, and the ship toppled end over end and spun and darted within a delirious blur of colour and noise.

A long, powerful pressure built under him, and the wind of fire died down. The ghost-pilot dumped its memories back into Leo. He coughed in awe as he real-



ized three hours' worth of clever piloting through the accretion disk. When the shock had receded a bit, he said to his passengers, "We've arrived."

They spun deep in the ultraviolet layers of the disk. The *Pall*'s shielding rang with a deep thrumming, as if they were under attack from all sides. The engines were on full, keeping them level and matching speeds with the anomaly.

"There it is!" Galil shouted.

"What the —" yelled Tarski. Kapleau was shouting too; they weren't making sense, so Leo shifted frequencies to see the thing himself. For a moment after he spotted it he felt only puzzlement and, very nearly, disappointment.

It was not a ship; it didn't seem to have any large structure that could contain something. The anomaly was a tangle of incandescent threads, looping through and around itself with demented urgency. It was also much smaller than expected — just over a hundred meters in radius.

In lower frequencies, it broadcast a ceaseless, wavering scream into the sky of fire.

The others had stopped yelling. Leo cleared his throat and said, "Okay, people, what the hell is that?"

"Leo, break out the probes," said Tarski. Leo felt his ghosts move to comply. Bright arrow shapes moved to circle around the anomaly. They dashed back like hounds whenever the threads snapped too close.

"The rotation's not random," said Kapleau. The other Institute researchers spoke, their voices turning professionally bland as they moved to analyze the incoming data. "Subject is radiating at a temperature of eight thousand degrees. Rotation velocity of thread appears to be six hundred meters per second. Thread thickness is only three millimeters."

Leo took a look through the camera on one of the probes. The radiant thread oscillated around a central thickening of about ten meters' radius. He couldn't see inside it because of the whirl of glowing lines. "Is something in there?" he asked.

Galil's voice was slurred, whether from concentration or awe, he couldn't tell. "They're registering a mass in the core, Leo. An object."

He moved the probe in for a closer look. Suddenly one of the bright wires looped up and out, straight at him. Leo was plunged into static as the probe died.

He switched back to the view from the helm. "Did you see that?" Kapleau was shouting. "It cut it in half!"

"... Definitely knows we're here," muttered Tarski. "And it's not happy."

"Maybe it's a defense mechanism," Galil said doubtfully. "Against solid debris?"

"Doing an impact analysis," said Kapleau. "Looks like ... the thread didn't slow down at all when it went through the probe. Consistent with the thread being made of high-density degenerate matter. Not quite

neutronium."

"Oh, great!" Leo wanted to wave his arms in frustration, but the bed's fields wouldn't allow it. "How much does this thing weigh?"

"Could be ... millions of tonnes," said someone.

"Those threads will go through anything," said Tarski. "We built up the ship's hold to take solid bodies made of neutronium, but this stuff's got an edge to it. It would cut us to ribbons."

A moment of silence told Leo everyone was staring at the anomaly and thinking the same thing.

He said it for them. "So how are we going to get it home?"

Tarski called a quick conference in Virtual Reality to decide what to do. The crew's images sat in outer space like gods, with the anomaly a runaway bonfire between them. Galil sat next to Leo; he could sense her excitement, and kept his public image frozen while putting a virtual hand on hers. "See this," she said, pointing at the core of the tangle. "There's a mass in there, all right. It's fully protected by the thread-ball, but we know it's there because the whole thing pivots around it."

"Hmmp." Tarski leaned forward, his image illuminated by thread-light. "It begins to make sense. You were right after all, Galil."

She beamed. "What?" Leo asked roughly.

"It's a strongbox," she said. "A treasure chest, if you like. Why else would the Aknitari build such elaborate armour and store it where no one could get it?"

Leo stared at the anomaly. He was starting to get over the panic of the flight in, and now excitement was taking over. She was right. This could be the legacy of the Aknitari.

"It's priceless," said Tarski. "Possibly the most important find in human history. So we have to get it home. Agreed?" They all nodded. "How long have we got, Leo?"

"The ship can't take more than forty-five minutes of this." He shrugged. "I think we should come back, now that we know what we're up against."

"Not an option," snapped Tarski. "This is our only chance, and we have to take it."

Leo cast a sidelong glance at Galil. She was glaring at Tarski, and not hiding the fact behind any VR mask. "What are you saying?"

"The threads are armour, we're agreed on that," said Tarski. "So —"

"We're not agreed!"

"You said it yourself, Galil: the strongbox is at the center, hidden by the thread. Now apparently there's only one thread, which is knotted around the strongbox. So to get the strongbox out ..."

"All we have to do is cut the thread!" Kapleau finished for him.

"No!" Galil stood up. "We don't know what it is! The thread could be the strongbox. It may even be alive, for all we know! You can't just gut it and take the hide home! We're not after trophies here."

"We're not after the same things, Galil," Tarski said bluntly. "If you won't help us, at least don't get in our way." He gestured, and Galil's image vanished;

they had cut her out of the conversation.

Leo leaned over the anomaly. "You little shit, what do you think you're doing?"

Tarski blinked at him. "We need the strongbox, Leo. We're going to put an antimatter burst through the thread. When it unravels we'll take the strongbox and get out of here. All very easy."

"A million-tonne whiplash going amok is easy? You really are crazy. I'm taking us out of here."

"No, you're not." Tarski did something, and the whole scene vanished. Leo found himself back in his own body, inside the dimly lit womb of the g-bed.

"Damn damn damn!" He pounded ineffectually against the restraining fields. "Okay, calm down," he muttered to himself, hugging his chest tightly. He breathed hard for a few seconds, then flicked the switch to connect his mind directly with the body of the ship.

Nothing happened.

The anger washed away. "Umm." Leo stared blankly at his hands for a second. Tarski had cut him out of the communications loop. Probably he'd given some command to shut off the conscious part of the primary ghost-Leo. That would be fine if Leo really were a ghost; the ship would still have access to his piloting skills. But the ship's core wasn't a ghost, it was Leo himself.

Tarski had just decapitated the ship. Leo wondered whether he knew it yet.

He tried to manually reestablish the connection for a few minutes, but he couldn't even get an outside visual. He had cleverly adjusted the ship's manifest to show this g-bed as inoperative. The adjustment had been done from here; his connection had remained open because the manifest only controlled future sessions. Tarski had shut down his session, and any new one would have to check the manifest. Which registered this bed as dead ...

He would have to leave the g-bed. But doing that now, under high-tide conditions, would probably be fatal.

Leo cast about for an appropriate curse, but there was no one to hear it anyway, so he stayed silent and became still, hands pressed against the inside of the coffin.

"Leo?" Galil's voice. Leo gave a gasp of relief. Fifteen minutes had passed, during which his imagination and memory had had free play. He was terrified now and shouted, "Galil! Get me out of here!"

"Leo? What's happening?"

"Tarski shut me out! There's nobody conscious piloting the ship. Listen, you've got to go into the manifest and —"

"Leo? Can you hear me?"

He felt a chill like steel on his spine. She couldn't hear him. The connection was one-way, because his bed was down and wouldn't transmit.

"What have they done to you, Leo? You're not registering anywhere! Tarski's about to fire his shot, Leo, we have to stop him! He'll destroy the strongbox."

"Us too," he said bitterly.

"Your ghosts won't help me, Leo; they're so stupid! We've got one chance, but they can't do anything. There are manual overrides for the weapons systems, right? Well, if we can't stop him through the computers, we'll have to do it from there."

"No!" he bellowed. "Don't open your bed! The tide'll kill you!"

"I'm going to leave my bed and disable the controls from outside. It's our only chance to save the Aknitari, Leo! If you can help me, I need it now. Here goes."

"Galil, stop!" It was too late. He heard the alarms in her bed go off. Then silence.

Leo cursed his own cowardice. He should have opened his own bed when Tarski had shut him out. If he'd succeeded in getting to another bed then, Galil wouldn't be leaving hers now.

He took several deep breaths and hit the switches to kill the gravitics field. Deep red light pulsed around him as the siren wailed. The upper half of the clamshell lifted away, and Leo fell into pain and the sound of Galil's screams.

She lay on the air a few meters away. Galil twisted tautly with her arms straight over her head and her feet pointed down. The air was being forced from her lungs in short spasmodic yelps, and her eyes were wide and blank. Her face was dark with blood, and her bare arms and legs were swelling. As Leo rolled out of the bed, he felt the same invisible force trying to stretch him straight. With a bone-cracking effort, he rolled himself into a ball.

Gravity had gone insane. There was no way to gauge his trajectory accurately. He kicked against the g-bed and fell in a wobbling arc towards one of the empty ones. Demonic suction grappled at him, making his joints pop and his vision brown out. Galil had stopped screaming.

His knotted hands clutched the edge of an empty g-bed. He lost a fingernail as he was yanked down. A mad lofting sensation possessed his shoulders and head while his ankles turned against the metal flooring. Gasping, he pivoted his body around the lip of the bed and collapsed into it. Blindly, he punched at the keypad to close the lid.

This g-bed was registered in the manifest. He booted his command session and quickly reentered Virtual Reality.

A flood of memories told him what Tarski and the others had been up to. All the ship's antimatter armaments were firing on a moving section of thread. It was too late for him to stop them, and he no longer cared. He had to save Galil.

First he nudged the ship ever so slightly, to bring Galil down to the floor with minimum impact. Then he rotated the *Pall* around the pivot-point of the command center and fired the engines.

"Leo? What the hell are you doing?" shouted Tarski.

"Dropping us," he said. "Bastard."

"No! We're almost ... Oh, my God."

The thread had parted. Bright lines were flailing madly into the sky. Leo let the *Pall* fall past a lashing cord that could cut the ship in half. Radiation sang in

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his ears as the ship dropped straight at Cobra.

Twenty seconds. That was how long he had before Cobra's gravity took them irrevocably. He told his ghosts to wait fifteen seconds before firing the engines on a trajectory out of here. Then he opened the lid of the g-bed.

They were no longer orbiting, but falling, so the tidal forces had lessened. Leo still felt the dual pull on his head and feet as he emerged, but it was manageable.

Galil lay sprawled, arms and legs out, in the middle of the floor. She was turning like a human dial registering the rotation of the falling ship. *My coin*, he thought. He staggered over and gathered her up, wheeling back to his bed.

He tripped. Galil fell up and slid along the ceiling, moaning and coughing weakly. She pushed off, thrusting him away blindly when he moved to grab her again. He got her, but she mashed her elbow into his nose. He saw stars; disoriented, he lunged at what he thought was the bed.

They fell in, and a murderous weight came down. The lid of the bed dropped like a guillotine, bringing darkness.

Galil lay limp and cold against him as Leo put on the interface helmet. He wrapped one arm around her and entered the command session.

They had picked up momentum in the close orbit of Cobra and were rising in a long arc. They should pass right by the anomaly; when he looked, though, Leo couldn't find it.

The scientists were shouting in confusion and terror. For a few seconds it must have looked like Leo was killing them all. He ignored them; his first priority was getting Galil and himself out of here alive. The others could go to hell.

Their close orbit had done a lot of damage from tide and radiation. The *Pall* was limping now, but their trajectory formed a loop that would allow them to pick up the strongbox if it was free.

"Now hear this," Leo said. "We've got exactly one chance to net the fish on our way by. I want no arguments from anybody. Man your posts. If we don't get it on the first pass we're not coming back for a second."

The broken thread had unravelled and echoed only faintly in radar. Leo looked for an object a few meters in diameter in the anomaly's former orbit. Nothing registered.

"Where is it?" muttered Tarski. "It couldn't have been destroyed ..."

"Sure it could," retorted Leo. "Idiot."

There was a signal, though, faint but in the right position. Whatever it was, it was tiny — only a few centimeters across. And it was falling.

"I see it!" crowed Tarski. "Guide us in, Leo."

"Wait." Something was wrong. The sensors showed Leo a sphere small enough to hold in his hand, mirror-bright and perfectly round. Not what he'd expected.

He called up the ship's guns and ordered a volley of conventional fire against the object.

"Leo, stop!" shouted Tarski.

"What are you going to do, crash my session again? We'll never make it back then." He fired the volley.

The rounds of degenerate matter, small bullets each weighing tonnes, flew silently out to impact against the sphere. Or he thought they impacted; Leo could see the quick blips intersect the mirrored ball, but other than a flash of radiation there was no reaction. The ball didn't even tremble, much less change course.

Nobody said anything, but the implication was clear. That sphere massed far more than their own ship.

"Neutronium ...?" Tarski said after a while.

Leo watched it fall, fighting back anger and disappointment. The sphere would hit Cobra in a few minutes, and the orbit of the thread was decaying too. They had come, and seen, and destroyed the last active Aknitari relic.

"Well, what the hell was it for anyway?" he asked aloud. "Why go to all that trouble to protect a chunk of neutron star? It's crazy!"

It didn't fit his idea of the Aknitari. He had believed they would somehow provide for their inheritors; it had to be accidental that their cities were so thoroughly effaced, their records lost. They were like wise parents, dead before their time but capable of providing for the humans who came after. But this didn't fit with that safe image at all. As he watched the bead fall, his hackles rose. For the first time, he found the anomaly itself frightening, even though that tiny sphere was doomed to do nothing more than splat against the surface of Cobra, without leaving so much as a dent.

It was perverse. Almost as if it was intended to do that ...

"... It wasn't a strongbox," he said aloud, and as he said it he realized what, in fact, it was.

"What do you mean, not a strongbox?" growled Tarski.

"That's not neutronium," said Leo. "This thing isn't a strongbox at all. It's a *mine*!"

He didn't wait for a reply. Leo calculated another close orbit of Cobra and fired the engines. The *Pall* groaned around him as they looped down into the heart of the accretion disk.

"Leo!"

"Stop!"

He paid no heed to them. There was no time left. He dropped them to the edge of the death zone while his ghosts cried like mourners in his ears, reporting growing damage. Several fell silent as the systems they were in were torn apart. But the *Pall* held together through a pirouette around Cobra that took only a few seconds. Leo used Cobra as a gravitational slingshot to fling them under the accretion disk and back along the course they had taken on the way in.

The ship was out of control; everything was happening too fast for his human reflexes, and he should have spawned a time-dilated ghost to pilot, but panic drove Leo now. He had been betrayed by the Aknitari. Lulled by his own need to believe them better than humanity, he had come too close, and now they were going to kill him.

Leo fled through flaming skies, surrounded by his

own ghosts and pursued by memories remade as engines of destruction. The stellar gas falling in from Cobra's companion hit the *Pall* as hard radiation, and he drew a bright contrail of fusing hydrogen as he climbed out of the neutron star's gravity well. The corona of the companion seemed a cool haven now.

"What's going on?" whined Kapleau. As Leo ran a diagnosis on the Transit drive, Tarski answered: "The anomaly was protecting a ball of quarkonium. If that stuff touches neutronium it instantly converts it to quarkonium too. Relativistic combustion of Cobra's neutronium will convert the whole pulsar in two or three seconds. It'll be like a second supernova. The gravity waves alone could kill us!"

The Transit drive would need full engine power for two minutes to charge it. The mine would hit Cobra before then. Their only chance was to get to the other side of the companion before the blast. Cobra's gravity weakened slowly as Leo aimed them at the companion's horizon.

He counted the seconds as Cobra lowered behind the star's white horizon. When it finally disappeared, Kapleau shouted, "Made it!"

"Not yet," said Leo. "The blast could tear the companion apart, us with it." He checked their trajectory; satisfied, he diverted power from the engines to charge the Transit drive. He felt the power building like warmth in the pit of his stomach, but knew it wouldn't be in time. He watched the horizon, sensors damped all the way down.

A flicker, then another. A ramp of light lifted into the sky — a knife blade cutting up from the horizon. The ceiling of heaven had appeared and was toppling slowly down on them as Cobra's explosion ate away the mantle of the star. A demonic howl filled Leo's ears as the radiation sensors overloaded. His damage monitors panicked as one.

The warmth in his gut had become heat. He readied himself to release it in transition to superspace, but had to glance out once more.

A tidal wave of tortured stellar material rose, peaking under the flat line of annihilating light, and fell at him.

He didn't remember giving the command, but suddenly they were in superspace. The ship groaned and popped as gravity and heat ended. An astonishing silence swept in, and he saw only the grey static of virtual particles, but an afterimage of that cresting wave of fire stayed with him for a while.

"Leo? Where are we going?" Tarski sounded very tired.

"Blye. We have to get an evacuation going before the explosion reaches them."

"Oh." There was a pause. Leo watched the instruments begin conjuring up the virtual map of Blye. "It'll all be destroyed, won't it?" said Tarski finally.

"You're the expert." Leo didn't want to talk anymore. He closed the connection and retreated from command to let his ghosts complete the flight. For a



while he drifted with the static, then he remembered Galil. Immediately he dropped out of the command session —

— and into dark warmth and the touch of her. She was breathing steadily, curled against him. He reached to open the bed and carry her to the medicomp, but she groaned and put her hand on his.

"I hurt," she said thinly.

"You need treatment."

"No, not yet. Just hold me for a while ...

Did we get it?"

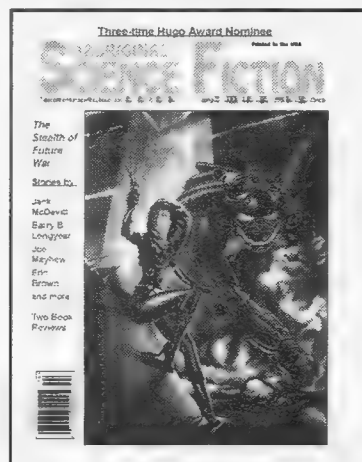
He lay back, feeling Galil move carefully to rest her head on his chest. He thought of all the things he could tell her, truths and lies, but none seemed adequate.

"Leo?" she asked sleepily.

"I'm sorry, we lost it," he said.

In this silence and comfort, all else seemed to recede. Leo knew he would never clearly remember the past few hours, only moments and flashes, and that he would remember much of it wrongly. What he'd believed to be the Aknitari had been a fantasy of his own, a comforting alternative to those crowding memories taken from the lives of machines. He had walked with that crutch for too many years. He was grateful it had been taken away. At least for now, and at least here, he touched the real, and nothing pursued him.

"Maybe," he said, "we found something better." □



The next issue of *Aboriginal* will feature "Report from the Rear," by Jack McDevitt and "Then Came the Misty Man," by Barry B. Longyear — two writers who have earned good reputations in the SF field. The issue will also have stories by some newcomers to *Aboriginal*, including "Going with Fergus" By Carroll Brown, "The Chaldron," by Chris East, "The Rescue of Lucinda Discal," By Jon Picciuolo "Help-Plants," by David Riley, "Nisi Granum Frumenti," by Joe Mayhew, "Skyball," By Eric Brown

We'll also have a feature article on "The Stealth of Future War" by Mark Mac Alester and our usual features.

Cat Got Your Tongue

By Joshua Mertz

Art by Jael

The following is an edited transcript of a conversation with Lawrence Hamtrope Cosgrove on July 24, 2057 at the Gravity Well Bar & Lounge aboard the Disney Universe orbital colony. Cosgrove is the mathematician responsible for the series of equations known as the Cosgrove-Mauser Entanglements, which led to the development of the Cosgrove-Mauser MegaThruster and Ether Enfoldment System, commonly known as the CosMos Drive.

The truth about the Entanglements, eh? Hmmmm.

You've probably never heard of my friend Iggy Feldstein. Possibly the most brilliant theoretical biocyberneticist that ever lived; certainly in the top five. I've known Iggy since we were at Amherst. We moved on to MIT together. He farts a lot when he drinks beer, is a horrid punster, and plays very bad pool. He has a Nobel Prize on his mantel and sneaks joints out in the garage when his wife's away.

What's that? No, he's not the Dr. B.F. Mauser mentioned in my footnotes. I'll get to him.

This was years ago, mind you. Seems like yesterday. I was working on mathematical models of polydimensional realities. Are you familiar with chaos calculus? No? Well, suffice it to say that it was exciting stuff. Thought it might have something to do with Ekman transport of gravity waves, if you catch my drift. No? Ah, well.

It was summer in San Frangeles and rotten hot. I was at a mental impasse, what you might call a "mather's block," when I got a call from my pal Iggy inviting me up to his place in the mountains. I was packed in five minutes.

Four hours later I was breathing clean air and knocking at his door. Velma, his wife, greeted me with a hug and a beer. I felt halfway healed already. She showed me to Iggy's study.

Let me give you a little background on Iggy's work. Remember the porpoise who sang opera and the talking dog who was an official policeman in Colorado? Iggy designed the software and did most of the surgery. His real work was for the military.

The goal was to make a smarter animal. Take your more intelligent beasts — porpoises, pigs, dogs, goats, et cetera — and insert some kind of constant push RAM chip into their frontal lobes, thus increasing their cognitive abilities. Burn language skills into the chip's firmware and implant an artificial larynx so the animals can communi-

cate with you. See if they're trainable. Some are, some aren't. Notice you don't hear about augmented goats visiting grade schools. But you've got a lot of chimpanzees out here doing orbital construction. Iggy's stuff. Still top secret back then.

So anyway, I walked into Iggy's office and we had hugs and beers and I told them about my maglev ride there and we laughed a lot.

A long-haired orange cat unwound itself from where it was sleeping on the desk and walked to the edge, staring up at me until it caught my eye.

"A guy can't get a wink of sleep around here," the cat said in a gravelly voice, then leapt from the desk and strolled haughtily out the door.

I was flabbergasted. My mouth, as I recall, actually hung open.

Iggy put a hand on my shoulder. "I'm sorry about Mr. Fluffy. He can be pretty rude."

"What do you expect?" Velma countered. "He's a cat."

"I expect a little decorum," her husband replied. "They are, after all, a civilized race. Or so he tells me."

Evidently this was a frequent subject. Velma was getting into it. "How can you trust that idiot fuzzball when all he ..."

"Hold it!" I said. They held it. I looked from one to the other. "Did your cat talk to me?"

Velma gave me her lecturing smile. "He's not actually *our* cat. All cats belong to themselves."

I looked to Iggy. He was sitting on a triumphant grin.

"Your cat talked to me, am I right?"

"Does give one paws, doesn't it," he smirked, eyebrows wagging.

I almost decked him. But my scientific curiosity got the better of me. "I remember something about this in that paper you sent me. But that was dogs, wasn't it? And goats?"

"That was in the lab. Mr. Fluffy is my personal creation. I've always wondered what goes on inside those devious little skulls." His eyes held a hint of exultation. "Do you like him?"

It was my turn. "Quite a cat-achter. I pre-fur short-hairs, though."

Iggy winced. "Yes, he does have a lot of purrsonality." He waved his hand. "There, that completes all the obvious puns. Now, what do you think?"

"I'm impressed. Very. How intelligent is he?"

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"About like a human eight-year-old in most respects. Infantile in others. Strangely wise in still others. Not what was predicted. The models showed *felis domesticus* as pretty far down the scale, which they are in some ways. But not in others."

"So what *does* go on inside their devious little skulls?"

"Damned if I know. Mr. Fluffy is as enigmatic now that he can talk as he was when all he could do was meow." Iggy looked sternly at me. "He'll try to bum tuna off you. Don't give it to him. Vet's orders."

We gazed at the open door through which the cat had gone, as if to read portents from its passing.

"The lab doesn't know about, uh, Mr. Fluffy," I said.

"Of course not."

The next morning, hung over and in dire need of coffee, I stumbled into the kitchen and thought nothing of the cat sitting by its food bowl, staring up at me.

Being a cohabitor with cats for a long time, I am used to talking to them. "Good morning, fuzzball," I mumbled.

But I am not used to them talking back. "Good morning yourself," the cat replied. "How about giving me some tuna?"

I was too hung over to flinch, too groggy even to raise an eyebrow. I had not spoken with the animal since our first encounter and was shocked a second time. But I recovered quickly.

"Your master tells me you're quite a thinker," I said thickly.

"'Master,' my ass," the cat grumbled.

I ignored the interruption. "So, what do you think about?"

The cat rested his eldritch gaze on me. "I think about tuna and cream. What do you think about?"

"Coffee," I replied, and turned away. This was getting too weird.

"To the left of the microwave."

"Thanks." I found that I did not want to look at the cat. The way his mouth moved when he talked was disconcerting.

Coffee was ready in a minute. It was a long sixty seconds. I drank a few sips and turned back to the cat. He was lying on his side, licking his stomach.

"So where's the cat food?" I asked.

He directed me to the shelf above the refrigerator. It was where the Feldsteins kept cans of tuna. "Very funny, Mr. Fluffy. Now where's the real cat food?"

No response from the beast. "Well?"

He casually groomed his shoulder. "Don't call me Mr. Fluffy," he mumbled through the licking.

I was getting fed up. "What do you want me to call you, then?"

"I prefer Lord Mouser Badboy Sir."

I sipped more coffee. "Don't be ridiculous."

The cat added a purr to his voice, taking the timbre from gravelly to the warble of water over stones. "Ridiculous is part of my nature."

This was quite a statement, coming from a lower vertebrate. I gawked at the cat, and he stared right back.

"The cupboard to the right of the sink," he said. I must have looked lost.

"The cat food," Mr. Fluffy gently reminded me. I fed him the whole can.

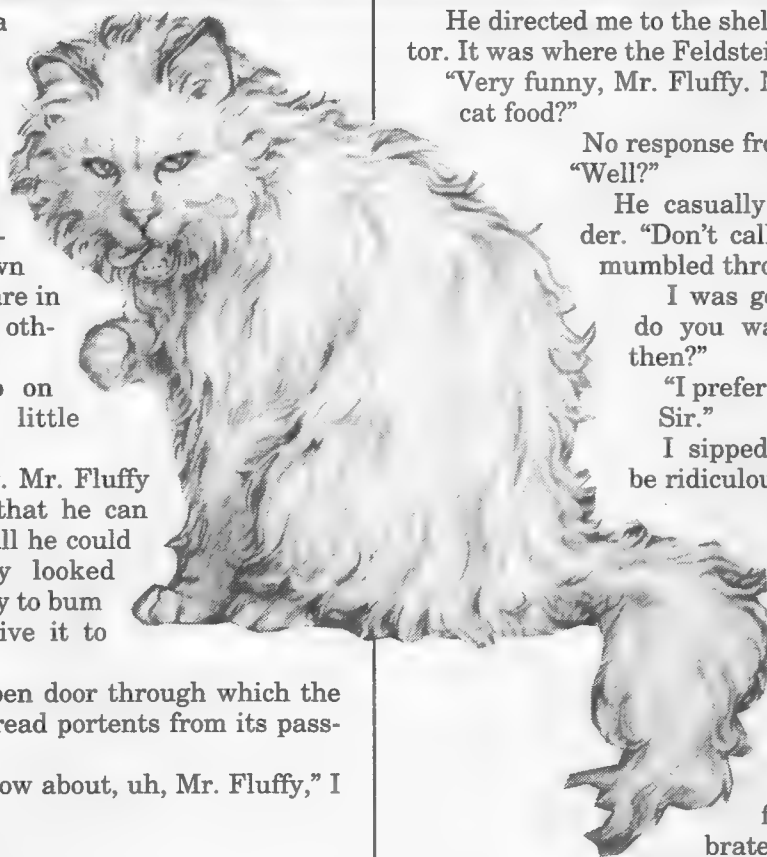
There followed a supposedly relaxing week of barbecues, lounging by the pool, and strolls through the mountains. And always the math. If you've ever pursued higher mathematics, you know what an addiction it can be. Not into math, eh? Anyway, I wrestled with it day and night, talking it down with Iggy until I lost him. I was on the edge of something new. Riding the curling crest of fractal fate, as it were.

In between eating, walking, and swimming I spent all my time hunkered over my computer, anguishing over the math.

Mr. Fluffy would curl up on the windowsill and watch me. In most ways he was your normal house cat. He slept most of the time, bugged anyone who came into the kitchen for food, and still got excited when you wiggled a piece of string in front of him. I generally ignored him.

So Iggy and Velma watched me go crazy over the math, not really knowing what to do, while Mr. Fluffy purred through a three-octave range with his artificial larynx. A weird time. Memorable.

About nine days into this so-called vacation, I was damn near apoplectic. I must have been anguishing out loud, because Mr. Fluffy came over and sat down beside the key-



board.

"What the hell is making you so mousemad?" he asked.

"You wouldn't understand."

"Try me."

Now, everyone knows that the best way to clarify something in your mind is to explain it to someone else. So I told this big fuzzy feline with the mind of an eight-year-old and the temperament of a pawnbroker about dimensionality, exponential cross-referencing, lepton geometry, the whole nine yards. He started licking himself, purring softly.

Eventually I had covered the whole thing. I could see it in my mind's eye, but it still would not gel. Mr. Fluffy stretched luxuriously. He looked up at me.

"So what's the problem?"

"The *problem*," I explained through clenched teeth, "is that I can't get the system of equations to close."

The cat looked at the screen. He tapped a key to go back to the previous screen.

"Seems pretty simple to me."

I'm sure my eyes bugged out and the veins at my temples throbbed. I felt like I had a string of firecrackers going off inside me. Here was a *house cat* — five kilos of lazy greed, a mammal with a brain the size of a pecan, a hairy idiot — telling me that one of the major Secrets Of The Universe looked "pretty simple." I responded with the first pithy comment that came to mind.

"Bullshit."

"It's the way we cats see the world." He paused, staring into space. I was puckering up for another response when he spoke again. "I was always aware that I saw everything that way," he nodded at the screen, "but I wasn't aware that I was aware. If you know what I mean."

I didn't. I had other things on my mind.

"Do you mean to tell me you think you can get a simultaneous solution from these equations?"

"Obviously you don't."

The arrogance of cats can become tiring. "So what's the answer?"

Mr. Fluffy looked into my eyes with his luminous gaze. "What's it worth to you?"

I had had enough. With a snort of derision I turned back to the keyboard.

Mr. Fluffy put his paw on my arm.

"Do yourself a favor. Try differentiating with

respect to theta."

I was sucked in. "You can't do that. Theta is a discontinuous function and ..."

"I'll be back in a minute. Don't forget to derive 'n' from your primary locus." He jumped down from the desk and strolled out the door.

It worked, of course. It was only a portion of the overall problem, but what a high it was to ride that math as it unfolded before me.

Mr. Fluffy came back a while later and watched me exulting. I picked him up and cooed endearments in his ear until he demanded to be let down.

"Tell me what to do about the rest of these terms," I begged excitedly.

"Like I said, what's it worth to you?"

I sat back in my chair and regarded the animal with the best cold stare I could muster.

"Exactly what is it you want, Mr. Fluffy?"

I had never seen a cat sneer before. "In the first place, I *hate* being called Mr. Fluffy."

"Yeah, and what else?"

"I want my balls back." He was deadly serious.

I suppressed a chuckle. This was like dealing with a child. "I'm sorry, it can't be done. Now, tell me what you think the next step is here." I tapped the screen with a chewed fingernail.

Mr. Fluffy rolled onto his hindquarters and assumed the position my grandfather called "playing the banjo," wherein a feline sticks one leg straight up and ostentatiously licks private parts. This is, among cats, a high snub.

"If I had thumbs, you people would be history."

I sighed. "Let's take a look at these equations, OK?"

He looked up. "We're not done bargaining yet."

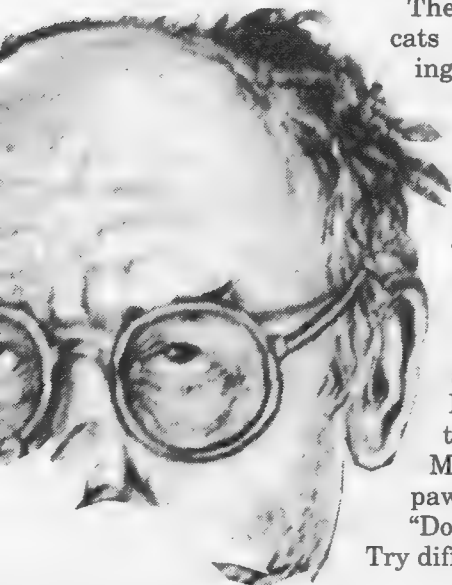
It came out to tuna and cream for life, a half kilo of fresh catnip the first Monday of each month, and a lot of silly stuff, like an hour alone in a room full of mice. We decided to list him on the paper as Dr. B.F. (Big Fat) Mauser. He didn't really care, as long as the catnip arrived on time.

Excuse me? Of course I know what goes on inside the devious little skulls of cats. Learned it at the knees of the master, as it were. But you have to be conversant in at *least* chaos calculus to understand. Really. Some other time. Now go away. □

Moving?

If you plan to move between now and November, please notify us. It takes several weeks for a change of address to get entered into the database, and you wouldn't want to miss your next issue of *Aboriginal Science Fiction*.

The U.S. Postal Service only forwards copies for two months, and destroys them after that, charging us 50 cents for the privilege. That's why we cannot replace lost copies without an additional fee, if you move and don't tell us.



Loop

By Kristine Kathryn Rusch

Art by Lubov

Amelia could not believe she was actually sitting there. The log was cold and damp beneath her jeans. The trees above dripped water. Out in the mist, an owl called, followed by the faint echo of a dog barking. Laughter from the porch made her cringe.

Above the ground fog, the sky was clear. Stars twinkled, and a tiny satellite made its consistent way around the heavens. Her cheeks tingled with chill.

She could still feel the controls, clutched in her left palm. The sharp plastic edges bit into her skin.

Somehow she hadn't imagined it would be like this. Somehow she had thought the device would send her into the middle of an extended memory: *she* would be sitting on the porch, Tyler's hand warm on her knee, Jeanne and Paul beside them, the smell of eggnog in the air. She had wanted to relive it all, not observe it from the side.

"More eggnog, anyone?" Tyler's voice had a deep richness. It warmed her. She longed to crawl onto the porch, knock her old self out of the way, and sit beside him again.

She had tried that when she first arrived. Her hands went through them all — and they hadn't noticed. She felt like Emily in *Our Town*: trapped in the best memory of her life, and no one saw her.

"Me," her own voice replied. It sounded higher, more confident than it did from the inside.

"Yeah, and a little more rum," Paul said.

"None for me." Jeanne's Southern accent had an air of falseness. Amelia didn't remember her well. Paul had broken up with Jeanne after dating her for only a year.

A long time ago.

It had all been a long time ago.

Amelia got up off the log, brushed the water off her jeans — how could she feel that and not her friends on the porch? — and let herself in the back door. The kitchen was as she remembered it: done in browns and tans, filled with too many dishes, too many books, and too many papers. The room smelled like turkey and pumpkin pies cooled on the counter. A calico cat — Nerdboy! She hadn't thought of Nerdboy in years — slept on an overstuffed kitchen chair.

Tyler stood over a large punchbowl filled with eggnog batter. With his right hand, he poured a steaming bowl of hot rum into the mixture. His

dark hair curled over his collar, and his broad shoulders strained at his denim work shirt.

She had forgotten how slim he was, how graceful his movements. As she walked toward him, Nerdboy looked up. His tail thumped against the chair, and his ears went back. He growled.

Tyler half-turned. "What is it, Nerdie?"

She froze there, waiting for him to see her. Nerdboy growled again.

"There's nothing there, kiddo," Tyler said, and returned to the eggnog. In the living room, the opening strains of the Elvis Presley version of "Blue Christmas" blared before someone turned the stereo down.

"Hey, you hiding in there or what?" Paul yelled.

"Coming!" Tyler ladled eggnog into three glass cups, looped his fingers through the handles, and carried them into the living room. Amelia followed. A fifteen-foot Douglas fir dwarfed the room, decorated only in colored lights and clear glass balls. Elvis crooned in the background, and brightly wrapped packages huddled under the tree. Her younger self patted the couch for Tyler. He handed Paul a cup before sitting down.

Her younger self looked up, and the smile froze on her face. She grabbed Tyler's wrist, nearly spilling some eggnog on his shirt. "Tyler, look. There she is again. That woman."

Tyler set his cup on the coffee table before looking up. Amelia didn't move. She wanted them to see her. She wanted *him* to see her. "Hon, it's shadows."

"No," Paul said. "I see someone too." He stepped out of the living room. Amelia walked toward him. If Paul believed, then Tyler would too. Then she could touch him again —

She squeezed the controls tightly, holding her breath as Paul walked into the darkened hallway. The machine squealed, and light shattered around her.

She could see nothing for what felt like an eternity. Then the white light faded into red and green spots. The air was warm, warmer than it had been in the house. She didn't move, uncertain where she was.

The spots cleared and she found herself in the lab. The lab was as empty as it had been when



she got there hours — a day? — ago. The forlorn Christmas tree had left a pile of needles on the tiled floor. The Happy Holidays banner had come loose from its nails, and the middle sagged. Dirty cups sat on the worktables, and gift-wrap overflowed from the wastebaskets.

It took a moment before she focused on the figure sitting in the middle of the mess. It was another version of herself — the version she had seen in the mirror that morning — fifty-six, slightly overweight, with deep, sad lines forming around her mouth and silver hairs overpowering the black ones in her short haircut.

Something was wrong. She shouldn't be able to see herself. Not here. Not in the now. She should be *in* herself, experiencing the moment from the inside.

Perhaps that was a moment from her past. Perhaps that was what she had looked like before she had gone to the memory. Perhaps she hadn't come all the way back.

She looked down at the controls, but they were still hidden by that incredibly bright light. She couldn't feel her left hand.

Tyler would have known what to do. Tyler always test-ran the equipment, while she stayed back and monitored the progress from the Now-station. Only no one was monitoring for her. No one could see if the small red malfunction light was blinking.

It would be so easy, she had said to herself after having too much rum and eggnog alone in that big empty house. Just a little trip back, set for only ten minutes: routine. No one would argue with routine.

No one would even notice. No one was scheduled to return to the lab until the day after New Year's, and that was Mark and Christy, the junior team, who would test all the equipment to see if everything was running properly for the week's experiments. Mark and Christy were grad students who had only been on the Project since Tyler died. Even if they saw the malfunction button blinking, they wouldn't know what to do about it.

Not that it mattered. No one had survived in the time stream this long. Tyler had thought it impossible to last more than a day. The government forensic experts who had autopsied him had thought some temporal distortion had killed him. They had warned her to pick the next traveler carefully — someone young with a lot of stamina and no family history of severe medical problems. Having anyone else travel would jeopardize the government funding and the Defense Department approval.

Amelia didn't know how long she had been in the stream. Tyler had never mentioned a white light.

She closed her eyes and reached for her left hand. Her fingers encountered fabric. She followed it until she felt her left wrist bone — with her right hand, as if it were someone else's wrist — then slid her fingers around to the controls. The plastic was cold. She couldn't feel any of the indented keys. She fumbled, reached, and heard an explosion loud as a clap of thunder.

The sun warmed her face. Her back was wet. An odd tingling ran up her left side. Her left arm had gone to sleep. She opened her eyes and found herself staring at a sky so blue it looked like it had been painted by a child who loved bright colors.

Water lapped around her, pushing at her clothes, raising her off the ground and then retreating. A hesitant lover, uncertain of his touch. She smiled and reached for Tyler as she had every morning since she was twenty-five.

He was gone.

She sat up, memory returning. Her left arm dragged in the sand, the control fused to her hand as if she too were made of some sort of synthetic. The sand was white, the air humid. The branches on the palm trees swayed with the gentle breeze. To her left the ocean stretched as far as she could see. To her right, the beach ended in a rise that led to a modified Spanish adobe.

Amelia had never been here before.

She stood. Her arm swung heavy and useless beside her. Water dripped off her hair and down her clothes. Her tennis shoes were soaked. That sensation bothered her most of all. She slipped off one shoe, then the other, picked them up, and walked barefoot across the hot sand.

Halfway to the adobe, her feet encountered stone. The stone path led through a hedge of oversized ferns. She walked through it and stood on a rise overlooking a shaded veranda. Small groups of white wicker furniture surrounded a small swimming pool. Two large glass doors were propped open. Thin white curtains blew inside the house, revealing more white furniture and a white carpet. A serving tray bearing a glass filled with brown liquid floated by itself through the double doors. It stopped near one of the furniture groupings.

"... can't." A woman's voice floated up toward Amelia. Amelia walked down the rise beside the pool, looking for the source of the voice.

A young woman sat in one of the wicker lounge chairs, slim legs crossed at the ankles. She wore a sheer white wrap with bikini bottoms underneath. Her feet were bare. Her right hand rested on a glass table, the beverage beside her. The serving unit floated back toward the house.

"I know this isn't the most festive place to

spend Christmas. But" — her voice broke — "Grandmama's funeral is tomorrow, and all the relatives will already be here."

Amelia couldn't see the phone at all, but she knew it had to be there. The young woman was speaking into the air. Amelia wondered how the young woman heard the voice on the other end. She walked closer, remaining half-hidden, uncertain if the young woman could see her.

Then she stopped. The young woman had long black hair, a narrow face, and wide dark eyes.

She looked like Tyler.

She looked exactly like Tyler.

Amelia sat on one of the wicker chairs near the pool. Her left hand bumped the edge of the chair, sending a dull ache to her shoulder. The unit squealed, and light eased out of its sides. The fingers on her right hand tingled.

A lump rose in her throat. She and Tyler had never had children. On purpose. So what had brought her here, to this woman, near Christmas? It was somewhere beyond Now, somewhere in the future, judging by the devices. Had Tyler had a child he hadn't told her about? He had had so many relationships before they met.

"No, look. I'm sorry," the young woman said. "I can't talk any more." She moved her right hand slightly and sighed. The connection had been severed somehow. Then she sat forward and squinted in Amelia's direction.

"Grandmama?"

The young woman reached for Amelia.

"Grandmama?" she repeated.

The light grew brighter. Amelia reached back. Their fingers met, but did not touch. Instead, the light engulfed her, and she could no longer see.

The gifts were open. Brightly colored wrapping paper lay in shreds on the floor. Paul and Tyler sat cross-legged on the hardwood floor, playing with Matchbox trucks. Jeanne and Amelia's younger self leaned on the back of the couch, arms crossed, and made snide comments about boys always being boys.

Amelia stood next to Paul. His red truck skidded across the floor and went through her feet. Her entire left side tingled, and the tingle had grown in her right fingers. She wanted to kneel next to Tyler and ask him what was happening. She wanted him to reassure her that everything was all right.

But everything was not all right. She was wasting away. Tyler had had the same symptoms, spread over a longer period.

She crouched, her left hand scraping the smooth wood floor. Paul started, then slid back, grabbing Tyler's arm as he moved. "There she is," Paul said.

"Where?" Amelia's younger self stepped forward. Jeanne followed.

Tyler looked up. "I don't see anything."

"Jesus," Paul said. "It looks like your mother, Amelia."

"Mother was never in this house," Amelia's younger self said.

Amelia remained still. She met Paul's gaze steadily.

"Where?" Tyler asked.

"Right next to me," Paul said.

Suddenly Tyler saw her. She recognized the light in his eyes. "My God," he said. He got up and walked around her. She stifled the urge to move with him. Then he tried to put his hand on her shoulder. She leaned into the touch, but his hand went right through her.

"My God," he repeated. "This isn't your mother, Amelia. This is you."

Amelia nodded. Tyler jumped back.

"This isn't possible," Amelia's younger self said. "I'm right here. I'm alive."

"And so is she." Tyler crouched in front of Amelia. His cheeks were flushed. "You can hear me, can't you?"

"Yes," she said.

"Yes," he whispered. "But I can't hear you." He tried to touch her again, and frowned as his hand went through her. "It's some kind of distortion field. You're not a ghost at all."

"I'm alive," Amelia said. She had to repeat it twice before Tyler understood.

"It is a distortion field. Time experiments?"

The older Tyler would have yelled at her for giving his younger self that much information, but she didn't know what it would hurt now. He had already seen her.

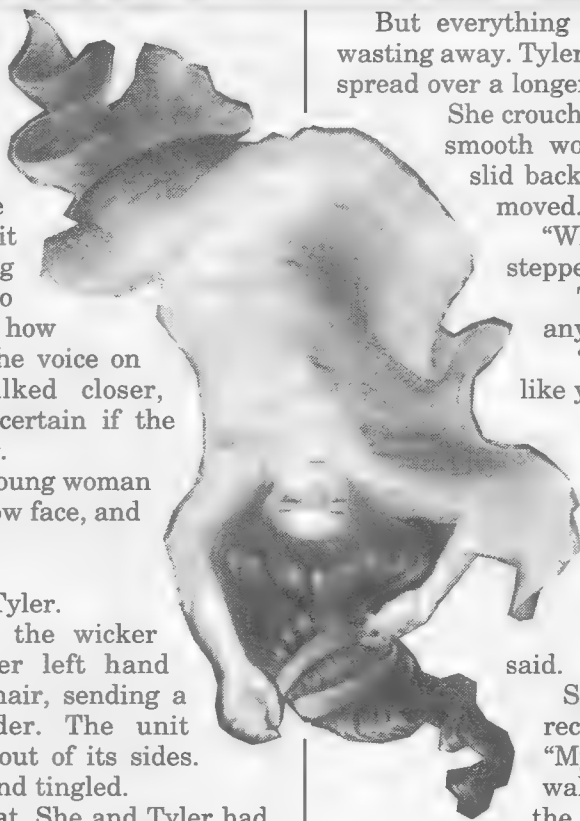
She nodded.

"My God," he said. "They work."

She shook her head and touched her arm. "Help me," she said. "Please. Help me."

"She's asking for help," Paul said. "Tyler —"

But Paul's voice was fading. The light had returned: brighter this time. It burned into her left hand, along her side. She cried out in pain — and then the light engulfed her.



Colors flashed behind her closed eyelids. She was on a cold, hard floor. Her head ached. She sat up and rubbed her forehead with her good hand before opening her eyes.

The lab again. Her Now-self still huddled over the controls like they were her last link to sanity. She stared at her Now-self for a moment. Had she really looked that lost before stepping into the time stream? She used to pity women who looked like that after they had lost their man. Tyler had been dead six months. She still had the experiments, their house, their friends.

But they all felt so empty without him. An ache grew in her chest.

It's a dream, Tyler had said. We're living a dream.

She made herself get up. She swayed a bit, unused to moving without the help of her left arm. She walked around the benches to her Now-self. Her Now-self was fiddling with the controls. Amelia remembered that moment: she only had time to return to one memory. She had to make it a good one.

Odd that she hadn't picked one with her and Tyler alone.

But she had been thinking Christmas, since it was the loneliness of the holidays that had driven her to the lab in the first place. And the best Christmas had been that first one in the country house, with Paul and Jeanne. She and Paul and Tyler had always compared the others to that one, thinking that nothing could measure up.

But it didn't really seem that special now. Perhaps it had been special because it had been the first.

Her Now-self looked up and gasped. Amelia sat on the bench across from her. Her Now-self reached out just as the air exploded around them.

She couldn't get air. Her mouth was filled with water. Her right arm flailed. She opened her eyes to a blue distorted world. Underwater. She was underwater. She had to reach the surface or she would drown.

She kicked up, three good strong kicks that pushed her to the air. She spit the water out of her mouth and took deep, thankful breaths. Water rippled around her. Her presence had disturbed it. She was in a pool. The pool she had seen near the adobe house. She kicked her way to the ladder on the pool's deep end and grabbed onto the metal railing with her right hand. The tingling had progressed into her wrist. She could barely move the hand at all.

She was running out of time.

She climbed out and sat on the side, breathing heavily. The young woman was asleep in her lounge chair, left arm covering her beautiful face.

Amelia knew better than to try to touch her. The people were not real but the places were, as if they were a revolving set for a cosmic play.

Amelia grabbed a towel off the stack and wiped the water from her face. The humid air almost felt cool. She wrapped the towel around her neck and wandered inside the house.

The main room was white with white furniture: obviously for entertaining. The back rooms had beds in them with clothes scattered about. The young woman did not live alone. A cat slept in the middle of one of the beds and gave Amelia the evil eye as she passed.

She stopped in the only bedroom that looked as if it hadn't been used recently. The bed was an oversized four-poster like the one she and Tyler had had, with pale pink sheets under a pink and brown patterned spread. But that wasn't what drew her. What drew her were the pictures on the walls.

Some looked familiar: an early date with Tyler at a seafood place; a prize-winning photo of their first lab. But others were dream photos: her in a white wedding gown, Tyler in a black tux smiling down at her; both of them smiling in professional photography fashion at the tiny baby she held in her arms. Then baby pictures and school pictures of a young girl surrounded by family groupings with Tyler aging as he had and the temporal distortion wasting him away. He wore another tux for the young girl's wedding, looking proud and fatherly, and after that, he appeared in no more pictures even though they continued to chronicle the girl, and then her daughter — the young woman Amelia had seen outside.

She sighed and leaned on the bed. Her body was shaking. A life that she hadn't lived, complete with photographs. This had probably been her room until she died.

The shaking turned into a shudder. A life she hadn't lived. A life she could never live, even if she had married Tyler and had a child. She would die in this time stream — in this loop — and no one would know. They would just think she had disappeared.

She stared at the photos, and watched as they vanished in a blur of light.

She awoke to the sound of voices. Tyler was hunched over her, a frown on his too-young face. "She's back," he said.

Amelia couldn't move either arm. She wanted to sit up, but knew she didn't dare, not in front of this young Tyler, not with the chance of losing her balance.

"What's happening to you?" he asked.

She wished he could hear her. She would tell him and maybe he would find a solution. Still, it wouldn't hurt to try. "I'm trapped," she said. "I'm

stuck in a loop."

He understood the part about being trapped. She had to repeat herself three times before he said: "Loop? Like in the movies?"

Not exactly, because she did move forward in each time period. She just kept visiting the same three settings. But she nodded anyway.

"Loop," he said reflectively. The tree lights winked behind him.

"I still think she's a ghost," Paul said, from somewhere behind them. "I don't care about the scar on the chin. She looks like Amelia's mother."

Tyler shook his head just a little. He smiled at her with the love she had missed. He knew her, just as she would have known him. It didn't matter that she had a younger self watching somewhere in the background.

The light was back, eating Tyler, making him disappear. The loops were shorter now. "Tyler," she said, wishing she could reach for him. She didn't want to lose him again —

— but when she came to herself she was back in the lab, propped against the large black lab table near the front of the room. The numbness had started in her feet. She looked at her arms. They seemed to be hers, except for her left hand, with the control fused to her skin.

She had jumped back too far. She had known there would be that risk. Tyler had said that when he went on trips longer than ten years he always felt depleted. But she had thought she could deal with depleted.

Her Now-self left the bench and walked over to Amelia. Her Now-self wore a ring on the third finger of her left hand. Had Amelia altered something by appearing? Or had she slipped into another life, another time? Had that trapped her?

Her Now-self's hands were shaking. They passed over Amelia's useless left hand, and her Now-self swallowed, hard. "Your control is broken," her Now-self said.

"I know," Amelia said.

But her Now-self was looking down and didn't seem to hear. Even in this place, she couldn't speak to herself.

Her Now-self set the control down. "Here," she said. "If I don't touch it, you can. Take mine."

Amelia shook her head. She couldn't move her arms. She smiled a little sadly. She would die here.

"You're the woman we saw all those years ago, aren't you?" her Now-self asked.

Amelia nodded. She was getting too tired to speak.

"You went to see him, didn't you?" her Now-self asked. "Just like I was going to."

Amelia smiled a little. She *had* seen him, one

last time. And he had smiled at her. He loved her, no matter who or when she was.

"And it was wrong. It trapped you." Her Now-self stood. "When he — when he was alive, he made me promise never to come here by myself. He knew, didn't he?"

"He guessed," Amelia said, even though her Now-self couldn't hear.

"And all the precautions," her Now-self said quietly. "He was trying to protect me. He said, before he died, that he would always love me. And I didn't believe him. I had to see —"

Amelia nodded. The tingle filled her entire body. The light was returning, and the sound was fading. She had done this. She had made the changes, by appearing in her own past. As a ghost.

She wanted to tell her Now-self not to go, but she couldn't. She couldn't move at all.

The light faded one final time. Amelia knew something supported her, but she couldn't feel it beneath the tingle in her body. As the red and green dots dissipated, she found herself on the four-poster bed in the adobe house, staring at the pictures on the wall.

They hadn't changed: she and Tyler gazing happily at each other, the baby between them; Tyler, giving away the bride. It took a moment before she understood what the photographs meant. They meant that her Now-self had heard, had understood. Her alternate self, the one who had married Tyler, borne a child, and worked on the Project, had set the controls aside, faced the dark and lonely house, and conquered it.

A breeze moved the curtains. The air had a fresh, salty smell here that she could have grown to love. A movement caught the corner of her eye. She tried to turn her head, but couldn't. The floorboards creaked, and the young woman in the white shift appeared at the edge of Amelia's vision.

"Grandmama," the woman said, kneeling beside the bed, "Grandmama, I miss you so."

Amelia smiled her last smile at the woman she and Tyler had helped make in a world she would never remember. "I missed you, too, honey," she said as the light took her. "I missed you, too." □

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Lasuta

By Nigel Brown

Art by Carol Heyer

Bertrand Russell once defined a gentleman as someone whose grandfather had an income of £1000 a year. I failed to qualify on those grounds, but as I rode through the bustling streets of Ilhed, I hoped the afternoon's Hunt would be a first step towards social grace.

Darter, my two-year-old gelding, carried me between the narrow stone canyons of the colony city. The precious invitation from my Supervisor sat in my breeches pocket. I fingered it reassuringly as I ducked under the low, sculpted eaves of the North Quarter, humming an old Imperial march "By Laser's Light." As I steered through the bubbling crowd of humans and natives in the hot afternoon sunshine, the polished chitin helmets worn by the *Goya* native sect caught my eye: brilliant white skullheads bobbing in the grey-skinned crowd like gulls on a dark sea.

I felt happy for the first time since my arrival on Batris, this was before my encounter with Lasuta, in the late summer of the British Empire Year 501.

The word "alien" was considered bad form for British subjects on Batris. The natives of this planet were obedient, tall, grey-skinned bipeds with flat green fronds and thick fur for hair. They wore only a loose breech, usually of dirty white cotton, and sandals. Many spoke Imperial English. I'd heard they were symbiotes, but my main concerns as Junior Clerk (Agricultural Arm of the Civil Service) were with farming output and returns for the Empire, not exobiology.

"Name?"

"Holt. Edwin."

The guard at the H'tuos Gate consulted a clipboard in a leisurely manner.

"I'm meeting Supervisor Moorhouse."

"Yes, sir."

Darter kicked at the dust as the native slowly ran its claw down the list. I could see the open fields through the heat haze, beyond the archway, with their promise of a refreshing gallop over the sun-baked ground.

"Holt," I repeated.

"Yes, sir."

At last it waved me through. I couldn't argue with Bahlyatan efficiency, but being delayed by a native left a bad taste in my mouth.

Fields ringed the city, beyond the northern gate, and Ilhed became distant towers and pillars of white marble behind me, an ethereal silhouette

on the hazy orange skyline. I breathed deep as Darter jogged along. Out here, the taste of the acrid city air left my tongue, along with the peculiar cabbage-like smell of the natives.

Charles Moorhouse headed the Hunt on Wednesdays, after luncheon. I watched for his portly figure as Darter's hooves pounded across the hard-baked ground. In Moorhouse lay the key to my rise in Batran society. I'd sat the Offworld Colonial Civil Service Examinations in hopes of bettering my position while, I'll admit, avoiding the army. The Tau Cetan troubles we were having made it likely I would be posted to that dreadful planet if I'd borrowed to purchase a commission; to my greater misfortune I set my heart beyond the local group into the deeper part of the Galaxy.

After a few minutes' ride I saw Moorhouse, a large figure perched on top of his horse, glinting with gold and red leather under the bright orange sun. The sunlight from Batris's K-5 star threw the hunting party into dark relief against the bare earth of a harvested field.

I never stalked the Batran Leviathan — that creature proved too expensive for even my means — but during my first years on Batris the imported Earth fox made a good substitute. They let them breed on the fertile plain just north of Ilhed; the hunting parties kept them in check amongst the stiff, spiky Bahlyatan crops.

I rode up to meet them: a small group of Earthmen and their ladies, all eager for the chase.

"Take the land to the left, Holt." Moorhouse smiled carnivorously, jingling with bells on the harness as he moved. "I think our foe is hiding in the hedge." He handed me a short stick, with the end splayed out like a flattened broom.

A gruff man, Moorhouse pulled at his handlebar moustache, then pointed his gauntleted finger at a line of vegetation I could see a few hundred yards off.

"I have the word," he said slowly, "that a large dog-fox has been spotted in a nearby calving-shed. A fine catch for the day, eh?"

I nodded.

"Been on a Hunt before, Holt?"

"Yes," I said, not wishing to appear a complete novice. "On Earth ..."

"Pagghh!" he snorted. "Lasuta! Kindly accom-



pany this fellow up to the hedge. Break him in. We've got the Culling Contests next spring. I need a good man on the team."

"Of course, sir." A cultured voice, a deep male bass, with a touch of Oxford.

I turned and stifled a cry of surprise. A Bahlyatan addressed me, a native dressed in British attire: a casual jacket, breeches, and boots with a tweed cap perched absurdly on its head. Jet-black fur peeked out from underneath at the front, and its green fronds trailed out right and left across the checkered tweed covering its broad shoulders. I gazed into three eyes set like black marbles in the furry round head. The creature's grey skin showed no sign of its exposure to the harsh sun; I found it impossible to guess the native's age.

"Pleased to make your acquaintance, sir. My name is Lasuta." It held out a four-fingered hand, then took mine in a firm shake. I felt horny claws on my palm, although they were trimmed and buffed smooth. I remembered from my brief that the Bahlyatan male was clawed, unlike the female.

"And yours," I managed. One of the ladies giggled.

I nodded a greeting to the rest of the party, then watched as Lasuta mounted a steed. The others treated him like one of their own, so I was careful to follow their example. Besides, Imperial Policy demanded we show respect for subject races, if only to their face.

I turned my head from Moorhouse's watchful eyes so he wouldn't see my anger at being paired with this peculiar native.

"This way," Lasuta said. He handled his horse expertly, and I worked hard to keep up with him as he led me uphill to the hedge. The natives worked hard in the autumn to harvest their crops before the winter frosts, and I was grateful for the close-cropped land that made easy riding. Tall hedges separated the fields, but I could see over the top of them on horseback. The field beyond was still full of Bahlyatan wheat — a dense mass of grey stalks. The foxes, not being natives, used the hedges like roads across the land. Their softer, Earth-evolved bodies had no defense against the sharp needles of the alien wheat.

I stopped at the edge of the field to await instructions from Moorhouse. He was our "chaser." The fox would hear his bell chimes as he rode along the field perimeter, and it would race away from the sound, inside the hedge. My job was to surprise it and force it to break cover, when it would make a dash across the open ground, in the sight of the waiting hunters' guns.

"We'll run him down, sir."

Lasuta. He was on foot, standing alongside me. He had the lance in his hand, ready to thrust

it into the hedge as the fox approached.

I gazed at the six-foot-long weapon.

The traditional hunt, on horseback with a pack of hounds, was something I missed. We had steeds, but the Imperial purse wouldn't stretch to dogs merely for recreational use.

"Your English is impeccable," I remarked as I dismounted. "Not Oxford, but I pride myself on my command of our language." He smiled, revealing a flash of white teeth and, I swear, a diamond inserted into one of the front incisors.

"Your language?" I asked. This alien's confusion over his British status irritated me. He assumed a higher station than was his lot in life, like a dairymaid playing a duchess.

No. Like a cow posing as a dairymaid.

I heard a rustling in the hedge.

"The fox," I said. I drew up my stick.

"You must use the kharf rod to direct the beast, sir. I'll keep it from the hedge." As if to demonstrate, Lasuta poked his lance deep into the thicket.

At once I heard a howl of pain and rage. I jumped backwards, startled, as the surface of the hedge erupted like a green boil. A dark figure emerged with sharp, snapping teeth. I screamed as claws scored across my chest.

Its paws tore through my jacket and ripped my skin before I could move.

Then the animal howled again, and I saw Lasuta's lance pierce its side. The native grunted with effort as the creature twisted on the blade, trying to reach its tormentor. I fell to the ground, but I realized with shock that this was no animal. That round furry head, broad chest, and thin grey arms ... this was another Bahlyatan.

Lasuta drove the lance in farther, and red blood spurted up the handle until the crazed Bahlyatan collapsed at his feet.

"Are you all right, sir?" Lasuta bounded over to me, ignoring his fellow native.

I jerked back at his closeness. They were all the same to me, despite the difference in dress, and Lasuta still held the lance.

"Let me look," he said.

"I'm all right," I replied, testily. "It's just a few scratches." I winced as his clawed fingers gently peeled back the shreds of clothing. His black, unblinking eyes stared at my wounds, then he looked back towards Ilhed. "The others saw what happened, sir. We'll get you to a doctor."

Moorhouse rode up. He glanced at the body of the dead Bahlyatan, then asked Lasuta: "Holt hurt?"

"A graze, from the claws," I answered.

"Take him back to Ilhed," Moorhouse instructed Lasuta, ignoring me. "Get the Doc to patch him up." He nodded in my direction. "Bad luck, Holt. Must go. Got a fox to catch."

I raised my arm to protest, but Moorhouse turned his horse and galloped away.

"Can you stand?" Lasuta asked. "My horse can take both of us."

I realized then that Darter had fled when the Bahlyatan attacked. Lasuta saw my concern.

"Your horse will be picked up soon. He won't go far."

"I can walk," I said, but as I stood a shooting pain scored through my left leg. Lasuta's arm shot out to steady me. I saw I had no choice but to let this native take me back to the city.

I rode behind him, clutching his waist as his horse trotted along. Each jog up and down hurt my ankle; I suspected it was twisted. The blood had ceased to flow from my chest; I was left with an awful stinging pain that throbbed when I inhaled.

Lasuta had a faint musky smell close-to, like a damp fur coat on a rainy winter's day. This close to him, I was surprised to see that the green fronds really were plant leaves. They sprouted from the fur at the back of his head.

"Are there many criminals outside the city?" I asked.

"This country is law-abiding," Lasuta said. "Do you mean the animal that attacked you?"

"Animal?"

Lasuta pulled his horse to a halt. His head turned completely around, like an owl's, and he looked at me.

"You think that was a native? Did you not see it had no Bahl?" His hand came up, and he fingered the leaves that adorned his head.

"You mean your headdress?"

"Head adornments? No, sir. When we Yatans are joined with the Bahl plant at birth, we become *Bahlyatan*. No longer animal."

I looked at his green fronds in wonder. "The plants elevate your intelligence from animal to people? Then you're really only ...?"

"We are symbiotes, sir. Their enzymes nourish our brains, whilst our blood nourishes their bodies. Intelligence means greater survival, sir. Quicker reflexes as well. Especially with lances."

With that, he turned back to face the walls of Ilhed, and we rode on through the North Gate in silence.

Porters filled the narrow streets, carrying bundles of cloth and baskets of strange fruits on their heads. Lasuta seemed to navigate these

hazards with a sixth sense. I had to admire the way he expertly handled his horse, avoiding a bruising collision with the burly creatures. He passed through the throng like a gentleman out for a Sunday stroll by the Serpentine.

I concentrated on what was going on around me, to distract from the pain in my leg. My throat was already dry from the dust that was thrown up by the city traffic as we trotted along.

Ilhed sits on land reclaimed from the sea, perched on seven islands separated by creeks. The Military Hospital lay across two islands at the southern end of the city.

We rode due south, past the Temple of the Emperor Charles the Tenth, with its grand imperial architecture fronted by marbled Greek classical columns, through the Tari Bazaar, the market of jewels, and the infamous Bata Bazaar — the robbers' market. Shopkeepers sat cross-legged on cushioned seats, crying out their wares, and we jogged along between them. Poles of pure iron stood like totems in the market squares, inscribed with ancient Bahlyatan hieroglyphics petitioning good business from the gods.

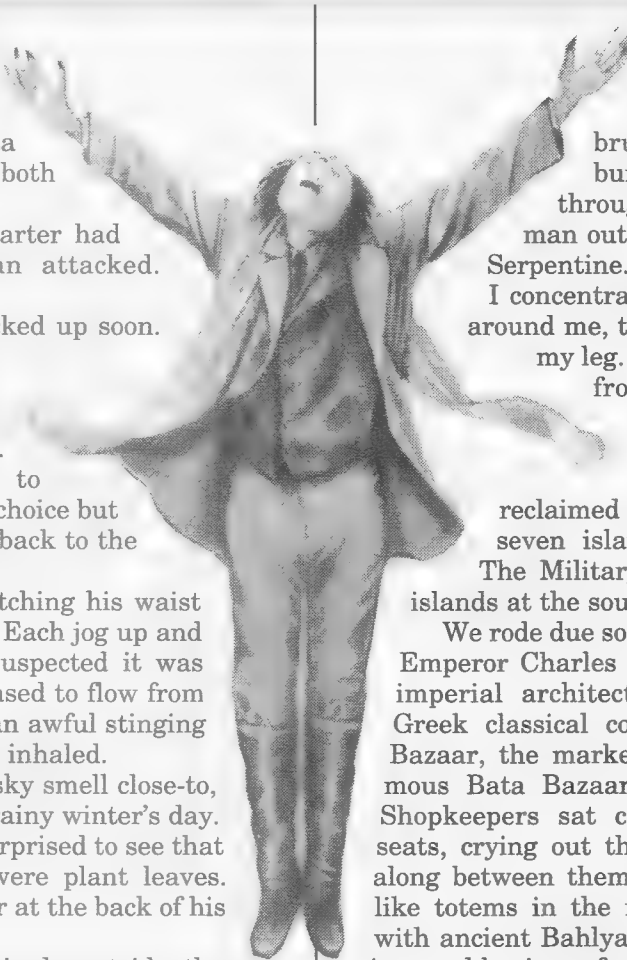
Thin grey hands bearing fruit and trinkets brushed by us on either side, but Lasuta ignored the street sellers and all who passed before him. This proud Bahlyatan reminded me of a fastidious old maid, forced to travel amongst the common herd but ignoring them as an aristocrat would pass over a pauper; yet he had a nobility of carriage that held him like a steady rock against the waves of beggars — his fellow creatures.

At last we reached the gate of the Military Hospital. Lasuta carefully lowered me to the ground, and I heard him demanding prompt attention inside for his "great friend, heroically injured fighting a yatan out in the wild."

Before he left, I felt honour bound to call him back: "I haven't thanked you for saving my life."

Lasuta nodded. He didn't smile, but I had the impression he was pleased.

This was my first meeting with that remarkable alien, and we kept in contact during my first years on Batris as I worked my way up through the ranks of the Imperial Civil Service, never suspecting what our growing acquaintance would lead to.



A warning of the tragedy I'll never forget came in a few bitter words muttered one evening in 502, my second year on Batris.

Lasuta came to me that night, as I dressed to attend one of our interminable theatricals. By now I'd made some progress in society. Tennis parties and cricket matches peppered my studies and tours of outlying districts, as well as amateur dramatics. We Ilhed Players set our sights high, and that evening we aimed to tackle a reading of *Romeo and Juliet*.

"Master," my house servant said, "Mr. Lasuta is outside. He begs your attention."

I sighed and finished tying my cravat. At that time, Lasuta was the assistant district clerk, one of the many natives under me.

"Send Lasuta in," I said. I had taken a liking to a Miss Dorothy Millington, a daughter of one of the officers stationed in Ilhed. That night I was eager to play Romeo.

Lasuta entered my room.

"What is it?" I asked.

"Just a pipsqueak of a matter, Mr. Holt," he said. "I need a signature on this authorization. One of *their* villages needs a new well ..." He glanced at my attire: my fine leather boots, spats, and silk shirt. "Sorry to disturb you, but the messenger leaves in an hour."

I signed the document, but Lasuta didn't bow graciously and depart. He stood, silent, for a few moments.

"Anything else?" I said. "I have to go now. We're doing *Romeo and Juliet* tonight." I'm afraid I was rather impatient. The charms of Miss Millington awaited.

"Two households, but alike in dignity," he muttered. Then he smiled, a little bitterly, I think, and left.

It was only later on that I discovered he had misquoted the first line of *Romeo and Juliet*. I thought he was just being a clever chap, little knowing what was to follow.

Soon afterwards, I was posted to Batra, the main city on Batris. Lasuta was sent with me, though I suspected he preferred life on the coastal plain. He never complained, of course; not even when I asked him to accompany me on that fateful trip into the Uplands.

By now, I was a sub-divisional officer in the Service, transferred from Agriculture. My duties required me to tour the many outlying posts in my division, a chore I dreaded. We would pitch camp in the countryside, usually just outside a village, and I would hear legal cases, settle local disputes, and carry out an inventory of crop yield, buildings, and population — in fact, all the labour required at the core of running the far-flung

Empire.

As with most of this land, the humidity was dreadful. Our clothes rotted as we wore them, and a host of servants was required to keep our dignity and appearance up in this hostile climate. Coward had it right about the noonday sun. As ever, activities usually resumed at five o'clock, after the temperature had begun to drop.

We travelled at dawn, before the sun rose too high, and I'd hoped that having Lasuta along would provide more interesting conversation than the taciturn soldiers. I'll admit that a cruel part of me wished to see this urbane native in his countryside, to torture him with the reality of Batris, away from the Earthmen and their protective veneer of civilization.

The land around Batra, and up into the hills, was a patchwork of dusty fields and copses of tall grey spiky plants. Flowers had never evolved here, and something in the soil made Earth flora difficult to grow. Surveying the pasty grey scene, I longed for a splash of colour — some bright red poppies or blue violets. I looked at the silent Lasuta and at that moment despised him.

Cows and goats were tethered to village huts on scrubby patches of land. They thrived here, along with the braying donkeys. The Bahlyatan animals were inedible to humans, so we had the natives rearing our Earth animals instead. The aliens were thin on our protein rations, but the planet had to yield something to the Empire for our protection and gift of civilization that we gave them.

I had dreamed of this back in England — touring the mysterious Galaxy accompanied by my own company of soldiers and servants, like my inspiration, Sir Richard Burton. He'd sought the source of the Nile; back at Oxford I'd dreamed of seeking similar secrets on the new frontier. As with so many others, though, this romantic notion of my duties had long since been rubbed off by the dusty road and the endless succession of jabbering natives.

Late one afternoon we pitched camp outside the village of Taini Nal. We were on the homeward swing of our tour, and I had decided not to inspect the village until the morning, when a commotion roused me from my campbed.

"Master! Master! I see the Master?" It was a thin, high voice.

"You can see him in the morning. That's when he hears cases," replied the harsh voice of Peni Bunda, my sergeant.

I emerged from my cool tent into the hot, sticky air and dismissed Bunda. I thought I'd get some peace before dark and settle this one quickly.

"I am the District Officer," I said. The native looked old, although I always found it hard to

gauge age with these people. Its dark beady eyes darted to my face, then looked away down the road. It raised a bony wrist and pointed due South, just past the last village hut.

"A Yata lies on my land. He refuses to move. He blocks the path of my planting in the field. For five days he lies, unblinking."

"Can't you move him yourself?" I said, irritated. It was a trivial matter, hardly life and death.

The native shrank back in fear. "No. No. No."

"So why can't it sit there?" I asked. I had a dread that this was to be another of their convoluted disputes, based on their primitive superstitions.

"No. No. Come, Master. Come."

I'd intended to take a short walk in the coolness of the evening before writing up reports for Batra, so I followed the native along the dusty trail to his field. Two soldiers, and Lasuta, accompanied me three steps behind. Lasuta carried a laser in his belt, as if he expected serious trouble out amongst the "peasants."

The old native was correct to complain. It didn't have a large plot of land, none of them did, and the Yata lay sprawled across two furrows on the dry, baked earth.

The culprit looked like any other native; then I noticed that the green fronds were missing from its head. I stepped back, remembering my last encounter with an animal Yatan.

"No, sir," Lasuta said, seeing my hesitation. "Look. See above this poor creature, in the mud."

The Yata was naked except for the usual filthy white breechcloth. His head was crowned by bushy tufts of fur as if it were lying on a soft pillow, and his claws were twisted and curled, at least a foot long. He seemed to grip the earth with them like he was being held down by a terrible subterranean creature, as if the grotesque claws were part of it and not him. Then I saw the Bahl plant.

It lay only inches from the Yata's crown, but the fronds were curled up — thin brown strands, like dried paper, clustered around a bunch of dark tendrils.

"Is he dead?" I asked Lasuta.

"No." Lasuta frowned at the sight. I'm ashamed to say that I took a secret pleasure in seeing his discomfort. "The Bahl died. Perhaps he had an illness which poisoned it. His body's recovered, but ..."

I sighed. This was easy enough to solve. "Well, remove him from the field, and we can get back to camp."

To my amazement, Lasuta hesitated. The native who had sought our help looked fearfully at the prone Yata, as if he might turn into a leviathan and gore him through at any moment.

"Get him out of there!" I said.

Lasuta shook his head slowly. "It is very bad. Very bad to disturb a Yata whose Bahl has died ..."

I looked at the other soldiers, but they wouldn't meet my eye. I could tell that they dreaded my giving them a direct order that they could not obey. I felt my patience with these savages slipping away. It was still hot and close, and the camp beckoned with its cool water supply.

"Then I'll do it!" I said. "If you damned *aliens* ..."

Lasuta jerked as if kicked. His hands trembled, and his head shook as he trudged up to the Yata.

"Please move, my good fellow," he said. The creature stared back at him with uncomprehending eyes.

"Move," Lasuta repeated. He knew I was watching him. Testing him.

Lasuta carried a small bamboo cane, like a sergeant major. He leaned forward and tapped the Yata with it, on the shoulder.

"Please move, old chap."

I saw the desperation in his face. Lasuta knew his failure would confirm his position in the world, and he couldn't bear that prospect. He pulled out his laser and shot the native in the face. The Yata's head scorched and charred on the dry earth. His body twitched in death spasms.

The native farmer screamed; the soldiers stepped back at gentle Lasuta's sudden fury. Then Lasuta raised his head, and I shall never forget the desolation in those deep black eyes, or the hatred.

I heard no more of Lasuta after that. He walked out of the camp that day, and out of the Imperial Government's Service. The natives gossiped that he went to live with the hill people, in the Uplands, but that was only a rumour.

I know I'll never forget him. I still have the laser that he left on my pillow, and its silent rebuke lies like an asp in my heart. □

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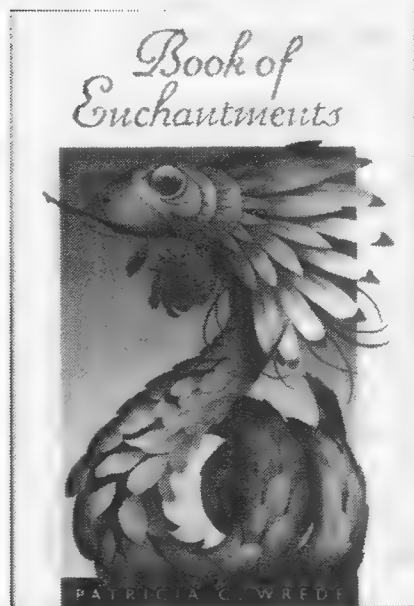
Writers Whose Names Begin with W



Book of Enchantments
By Patricia Wrede
Jane Yolen Books/Harcourt,
Brace & World, 1996
234 pp., \$17.00

I've enjoyed everything I've read by Patricia Wrede, and this collection of stories is no exception. The stories are very much in the classic fairy-tale mode, and, with a couple of exceptions, none would be out of place in any good compendium of folk tales. Mostly they're not complicated stories, and while some are dark, most are fun — playful, even.

My favorites were "The Sixty-Two Curses of Caliph Arenschadd," a fun



story, "Roses by Moonlight," which is chillingly nasty, and "Utensil Strength" (wherein the enchanted Frying Pan of Doom is used to defeat an evil enchanter), which is delightfully silly. But they're all good.

Rating: ★★★★★

Rating System

| | |
|-------|-------------|
| ★★★★★ | Outstanding |
| ★★★★ | Very Good |
| ★★★ | Good |
| ★★ | Fair |
| ★ | Poor |

The Price of Blood and Honor
By Elizabeth Willey
Tor, 1996
445 pp., \$25.95

As a middle book in a trilogy (or more) beginning with the excellent *A Sorcerer and a Gentleman*, *The Price of Blood and Honor* has the inconclusive feel of a book which continues established plot lines without actually beginning or ending very many of them.

It is likewise a dark book — you can guess that from the title — in which characters start to pay for their mistakes. Prospero gives up his magic, Dewer and Freia live with their misunderstandings, Ottaviano and Lunette are unhappy, and lots of other people suffer. A rough time is had by all.

In spite of that, it's not a down book, though it only really works in the context of the larger story. I'm eagerly awaiting the next volume (which may or may not be the end — from the story in Willey's first book, *The Well-Favored Man*, which takes place much later, there is enough still to happen that there could easily be three or four books left).

I recommend that you get this book, but unless you enjoy being just a bit frustrated (or can't stand not knowing what happened to the characters), hold off on reading it until the story is complete.

Rating: ★★★★★

Remake
By Connie Willis
Bantam Spectra, 1996
140 pp., \$5.99

Remake is set in a future Hollywood, perhaps twenty to forty years from now. Movies are digital, and live actors and actual film are no longer economical. What's more, old movies have been digitized and can be edited or even remade to order. So why take a chance on a new film, when a proven money-maker can be remade with some software magic?

The more-or-less hero of the story is a guy who makes his living re-editing

movies. When the studios decide that people don't want smoking in movies, he edits *Casablanca* so that Bogart never smokes — he doesn't just erase the cigarette, he even edits Bogart's gestures so a smokeless Bogart looks as if he never wanted a cigarette. (And, of course, alcohol is also elided. And doubtless a proper racial and sexual balance is added.)

It's the ultimate extrapolation of colorization.

Naturally, he's not happy with this, but he needs to eat (and buy drugs — where would Hollywood be without drugs?), so he does it. He's earnest but trying hard to be cool and cynical.



He runs into an even more earnest young woman from the Midwest who dreams of dancing in the movies — she's grown up with the great dance movies of the '30s and '40s and wants to star in them. Never mind that they're no longer made and haven't been made for half a century or more. Never mind that if someone *were* to make one, they'd do it digitally, and have Fred Astaire and Gene Kelly and six other long-dead stars all digitally recreated and starring in the movie. Who needs a nobody dancer?

In the end (through some rather

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bogus technological rationalization) she *does* dance in the movies by digitally replacing the original partners of Astaire and others with herself. (It's ironic that Fred Astaire was digitally made to dance with a vacuum cleaner in a recent Super Bowl commercial. Life imitates art.)

It's an enjoyable book and a short one: Willis deserves credit for writing a book that was just long enough for the story.

Rating: ☆☆☆ 1/2

Exodus from the Long Sun

By Gene Wolfe

Tor, 1996

384 pp., \$23.95

Exodus completes the *Long Sun* tetralogy, which appears to be set in the same universe as the *New Sun* books (though *much* earlier). The four volumes tell of a few weeks in which Patera Silk, a young priest at his first posting, sets out to save his school from being lost for want of its mortgage being paid. In the course of this



he gets swept up in plans of the gods who rule the world of the *Long Sun*.

Silk finds himself leading a revolution in his city of Viron and as the contending forces multiply and grow more complex, discovers that he is being manipulated by the veritable gods of his world. His world turns out to be a giant generation ship built like an O'Neil colony; and the gods are the AIs which were supposed to run it. The gods are actually doing their jobs, and want him to lead the departure from the ship which, unbeknownst to the passengers, who have long since for-

gotten even that they are on an interstellar voyage, has reached its destination.

By the end of the few weeks, he is Caldé — President? Mayor? — of his city and leading it in its fight against invaders from another city. While growing in power and the sophistication of leadership, he is also growing spiritually and perhaps (he thinks so, anyway) coming to know a real God who is beyond the artificial world of the *Long Sun* and its fake electronic gods. Patera Silk is the rare SF or fantasy character who not only has a religious experience, but has a convincing religious experience.

The book is intricate as only Wolfe can manage, full of lovely language and complex, interlocked plots and action. And of course, as we have come to expect from Wolfe, it is wrapped up at the end. (And we are treated to a couple of odd, surprise turnings right at the end which I certainly didn't expect.)

Rating: ☆☆☆☆

Tolkien's Ring

By David Day

Illustrated by Alan Lee

HarperCollins, 1995

183 pp., £12.99

Day's book digs through the world's mythologies for stories of rings, many of which obviously influenced Tolkien. This large-format book is lavishly illustrated with watercolors and pencil drawings by Alan Lee, who is one of the best fantasy artists in the business.

Day covers the entire range of ring stories, from oddball ones from the *Arabian Nights*, the Carolingian cycle, and China, to the traditional Norse, Germanic, and Celtic tales which so deeply underlay Tolkien, and even to his roots in Biblical stories.

I would have liked to seen a bit more discussion of Tolkien's own sources and the relationships among them, but perhaps Day has chosen best by limiting his own part to providing some framing commentary and telling the stories mostly as stories — without footnotes, so to speak.

The combination of subject, the mythology retold, and Alan Lee's wonderful art makes for a fascinating book.

Rating: ☆☆☆ 1/2

Spectrum III

By Cathy Burnett and

Archie Fenner with Jim Loehr

Underwood Books, 1996

142 pp., \$24.95

Spectrum I and *Spectrum II* provided superb snapshots of the state-of-the-art in SF illustration. I do hope that *Spectrum III* has not done the same.

I was disappointed with this volume. The award winners (do we really need yet *another* award?) were weak, and the bulk of the art in the book was mediocre commercial art. If this really is the state of the art, we're in for a long dry period.

I wonder why?

In spite of the comparative weakness of the art presented this year, *Spectrum III* is still worthwhile for anyone who is interested in SF art and the current state of fantastic illustration.

Rating: ☆☆☆

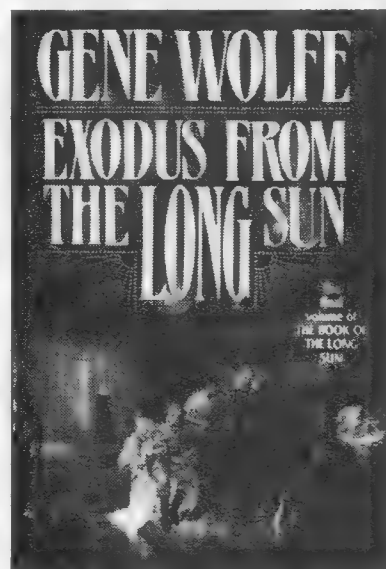
Night Lamp

By Jack Vance

Tor, 1996

380 pp., \$23.95

On the whole, Jack Vance's characters strike me as less than plausible — they're invariably neurotics (or worse)



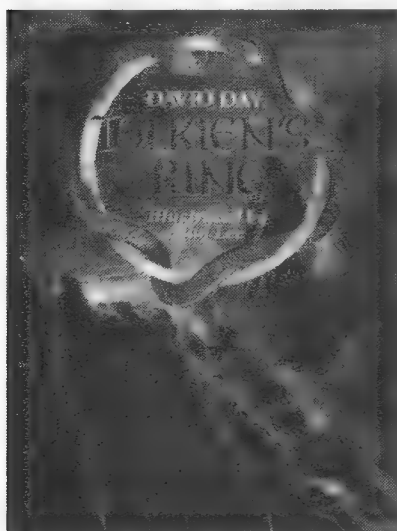
whose speech is terribly stilted (can you imagine anyone actually speaking like a Vance character in real life?), and they wind up doing terrible things to their enemies (and sometimes to a few innocent bystanders), generally in the pursuit of grotesque vengeance, all against a background of the most absurd, non-viable cultures imaginable. Nonetheless, Jack Vance's books are nearly always worth reading.

Night Lamp is quintessential Vance — it's as good as anything he's written, and in some respects better. The story is fairly typical: a young man growing up with foster parents defies

the ridiculous cultural norms of his society, tucked away in the vastness of the Gaean Reach. He's aware that there is some secret about his adoption, but he can learn nothing, though he dreams of a terrible black man stalking him.

(The young man's adoptive culture is very Vancian. Nearly everyone is status-obsessed, with an elaborate hierarchy of clubs and societies. One's memberships determine one's status, and to be a Clam Muffin is to be in the ultimate reaches of high society.)

His foster parents die (absurdly — one of the most ridiculous death scenes I've run across), and he goes off on a quest to learn his heritage. He visits planets with absurd, non-viable (but very interesting) cultures, and ultimately discovers and defeats the



evil individuals who caused the whole mess in the first place.

Standard Vance, but more than in any other of his stories the hero can almost be called normal, and he *actually enjoys himself* without it being the prelude to even greater disaster! He falls in love, it is reciprocated, they both know this, and it isn't the cause of sorrow!

Night Lamp provides everything Vance is known for and more — exotic places, idiosyncratic people, strange cultures, a vengeance-quest — but it also has likable characters who occasionally seem human.

This will certainly be on my Hugo nomination ballot this year.

★★★★ 1/2

Worldwar: Striking the Balance

By Harry Turtledove

Del Rey 1996

465 pp., \$23

With this fourth book, Harry

Turtledove's *Worldwar* series arrives at a somewhat inconclusive — but, sadly, probably realistic — ending. The premise of the series is that in 1940, early in World War II, an alien conquest fleet invades Earth. The aliens — lizard-like beings — have a 2020s technology: Nothing (with the exception of the spaceships) that we can't easily imagine having ourselves in 20 years, but much we can't quite make right now. Their job is to conquer Earth in advance of a colonization fleet scheduled to arrive in about 1960. Their interstellar flight is decidedly not FTL, and all they have is what they brought with them.

The aliens innovate *very* slowly and have armed their forces many times over to cover every conceivable eventuality in conquering 12th-century Earth. There could hardly be significant change in only 700 years

The four volumes explore this beautifully complicated situation plausibly. The geopolitics (the warring human factions cooperate to some extent against the aliens, but are never very united) is excellent, the images of the war seem believable, and Turtledove does a good job of describing the human absorption and adaptation of the alien technology.

In particular, the character of Otto Skorzeny is fascinating (as, apparently, the real man was). Given what he did in WWII, it's easy to imagine him doing the same here. Turtledove has portrayed him as essentially amoral, willing to do whatever he is ordered to do by his superiors, and doing it with panache. Very believable!

I think the books are weak in three ways:

Turtledove uses a narrative style in which every few pages switches to a different viewpoint character, and each chapter cycles around through them all. This can be effective, but I felt that he did too much of it. The narrative seemed choppy than I liked.

Secondly, he put Jews into too many of the narratives for plausibility. Turtledove frequently has Jewish characters in his stories, but he overdoes it here, making the author's hand just a little too visible for best effect. I think he probably should have dropped the Jewish character in England (his heritage and religion were not important to his subplot), but definitely kept the several in Poland. The advent of the Lizards would have created a *very* complicated situation in Poland, and Turtledove does an excellent job of trying to show the intricate German-Russian-Polish-Jewish-Lizard interactions, and the mixed

motives on all sides. This is perhaps the best section of the narrative.

Finally, I think he ended the book a bit too soon. After years of devastating wars, the Lizards have withdrawn, defeated, from the US, Europe, and Russia, but still hold most of the rest of Earth. Hitler is insane, but still in control of Germany and is so desperate to kill Jews that he's willing to risk restarting the war with the Lizards. Germany, the US, and Russia have nuclear weapons. This is *not* a balanced situation.

On the whole I liked the series. It's got its faults, but as a piece of alternate-history extrapolation it's well worth the read.

Rating: ★★★★★

Infinity's Shore



By David Brin

Bantam Spectra, 1996

524 pp., \$23.95

Book two of a trilogy is usually a disappointment, but I'm pleased to say that *Infinity's Shore* is not. *Infinity's Shore* takes the very complicated situation set up in *Brightness Reef* and spins it out.

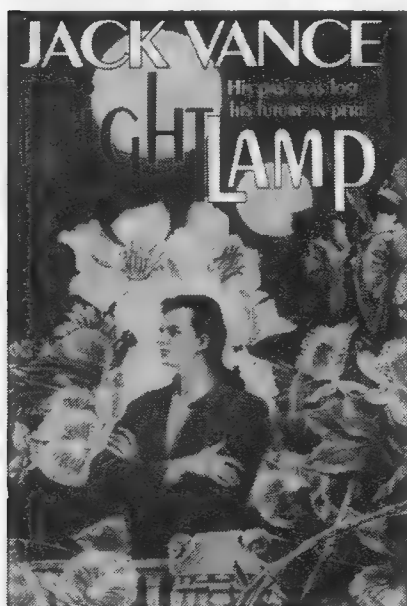
Jijo is a fallow planet — the Galactics declared a half-million years ago that Jijo should be uninhabited for a goodly period so that new species might evolve. In defiance of those rules, members of a half-dozen species, including humans, have established very illegal settlements there. The previous species came there to try to turn back into animals (a *very* peculiar aspect of Galactic religions); the humans came there as a refuge against a Galactic conquest of Earth.

Because the aliens who landed there before humans wanted to lose their civilization, they abandoned

their galactic high technology and had culturally regressed to simple farmers and hunters. Humans, aiming to preserve human civilization and culture, arrived with a great library. That was two centuries past. By the time of the story, the different species have established a multi-species society based on human ideas, literature and technology.

The *Streaker*, several adventures after *Startide Rising*, has landed on Jijo and is trying to hide there. It's chased by assorted Galactics, and Jijoan society will never be the same.

I continue to like the young aliens who have been raised on Human books and stories, particularly the hoon who calls himself Alvin after Alvin of Diaspar.



On the other hand, I was *not* impressed by the deus ex machina that the Egg has turned out to be. And the mighty Jophur are suddenly not very efficient.

Still and all, I'm looking forward with anticipation to the third and final book.

Rating: ☆☆☆ 1/2

The Peoples of Middle-Earth

By J. R. R. Tolkien
Houghton Mifflin, 1996
482 pp., \$27.95

With this twelfth and final volume, Christopher Tolkien's long analysis of the development of J. R. R. Tolkien's magnificent creation of Middle Earth is completed. The entire series consists of twelve 500-page books recording Tolkien's development of his mythology.

More than anything else, I'm

amazed at the sheer volume of material that Tolkien generated over his long lifetime of fiddling with his stories. Christopher Tolkien comments that these 6000 pages of printed material does not begin to show all of the detailed work that Tolkien did — Christopher chose to skip a lot of it as being of no real interest!

Tolkien always claimed that the main motivation behind his work was language, and the stories came about mainly to provide a plausible background in which his languages might evolve. While this has been visible throughout all twelve books, I was particularly struck by examples like "The Shibboleth of Féanor" in this book. The story, or perhaps better, history, was devised when JRRT noted an inconsistency in the relationship between Quenya and Sindarin. In his mythology, Sindarin and Quenya both derived from the Eldarin tongue spoken by all Elves at the time when some departed over the Sea to Valinor and some chose to remain in the West of Middle-Earth. Quenya evolved just a little in the nearly changeless paradise of Valinor, while Sindarin evolved a great deal more in the environment of the mortal realms.

Nonetheless, they were related languages, and those relations should have held. Tolkien (who always followed the rule that material, once published, was sacrosanct) discovered that he'd used words in *The Lord of the Rings* that were simply inconsistent with the evolution he'd established. Rather than ignore it (who else would notice it?) or change one of the words in subsequent versions, he worked out an elaborate story which explained how the Quenya word had been changed deliberately and how the use of the variant form had become the badge of one Elvish faction (the Féanorians) many years before Féanor's rebellion sent most of the Noldor back to Middle-Earth. Tolkien preferred to invent a whole episode of Elvish politics rather than change an ill-considered word.

This particular volume catches up with a lot of the details of the evolution of the non-Elvish races of Middle-Earth: Men, Hobbits, Dwarves, and others.

Like the other eleven volumes, *The Peoples of Middle-Earth* gives us yet another glimpse of a master at work.

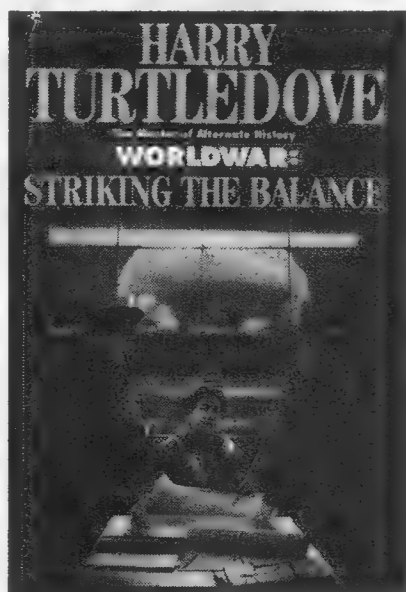
Rating: ☆☆☆ 1/2

A Sharpness on the Neck

By Fred Saberhagen
Tor, 1996
349 pp., \$23.95

I'm told that vampire fans don't like series featuring "good" vampires. Saberhagen's *Dracula* (the main character in a series which must by now extend to at least eight or ten books) doubtless falls into that category, though he isn't so much *good* as he is honorable. (Saberhagen's *Dracula* is not at all nice to his enemies!) The vampire fans can fantasize as they like — I like this sort of story better.

Yet this particular book didn't work especially well. It's told in two tracks, one in the present, with people working for *Dracula* and kidnapping a young couple, evidently to protect them from Something Awful, and the other during the French Revolution,



where the young man's ancestor gets involved in a fight between *Dracula* and his younger brother, also a vampire and definitely neither nice nor honorable.

I think the story would have worked better if the 20th-century part had been dropped and the parts in the late 1700s had been elaborated. Revolutionary France is a fascinating place (most of the horrors of the next two centuries are prefigured there), and Saberhagen had a good story to tell. I found the 20th-century affair dull and not terribly plausible.

Rating: ☆☆☆

Memory

By Lois McMaster Bujold
Baen, 1996
462 pp., \$22.00

Memory is one of the best books Bujold has done, probably because there are no big battles or space-chas-

es or complicated behind-enemy-lines spy stuff.

Miles Vorkosigan, the manic hero of most of Bujold's books, has been invalidated home due to seizures that he has been having ever since having been dead. They make him unfit to command his Dendarii Mercenaries and, when he tries to hide the seizures from his superiors on Barrayar, get him kicked out of Imperial Security also.

Miles feels *very* sorry for himself.

While Miles is moping around Barrayar (and getting involved in the Emperor Gregor's romance and marriage), Simon Illyan, the long-time head of Imperial Security, is attacked in a particularly nasty way, and it falls to Miles to sort it all out.

This book doesn't have as much drama as other Miles books, but I found it more satisfying. Miles is

changed beyond recognition. This future Earth is so urban that it's mostly covered by an endless sprawling city (though the city is divided into countless independent principalities and territories). And it is cut off from space by an impenetrable Shield which glows in place of the sun. Sort of an urban version of "a long time ago in a galaxy far, far away."

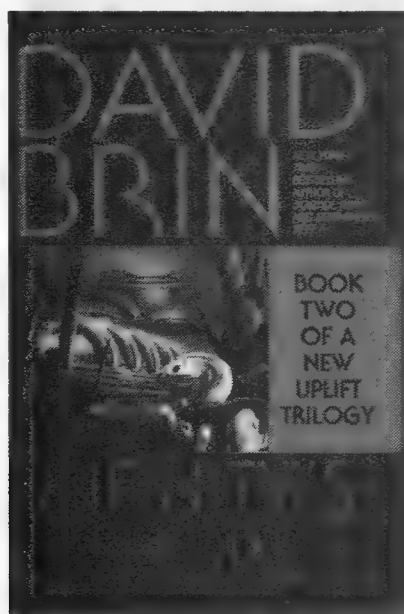
The world of *Metropolitan* runs on Plasm, a magical force derived from geomancy. It arises from the details of the placement of buildings and walls, and is collected and stored and piped around the cities like we handle electricity. It is the chief source of wealth and power. The comparison with electricity is apt — most of the city-states have municipal Plasm authorities to collect, distribute and tax it, but it's still the stuff of magic. There is practically nothing a mage can't do with

City on Fire.

Constantine gives her the job of organizing a Plasm Authority for the new government. Aiya's task is to find the Plasm thieves and get their Plasm back into the public coffers. Since Plasm is the main source of wealth, this brings Aiya into conflict with a great many forces.

Metropolitan is about Aiya growing up and Constantine's (and others') political maneuverings and wars and Aiya's reactions to them. In the course of *City on Fire*, the naive Aiya of *Metropolitan* grows into a major political force on her own. It's a tribute to Walter Jon Williams's skill as a writer that while she matures and changes, she does not turn into someone else. She's an older and wiser but not essentially different person than she was at the start of *Metropolitan*.

Like *Metropolitan*, *City on Fire* per-



becoming a believable character and might eventually turn into someone whom you wouldn't mind having as a neighbor. And Simon Illyan finally relaxes!

Rating: ★★★★★

City on Fire

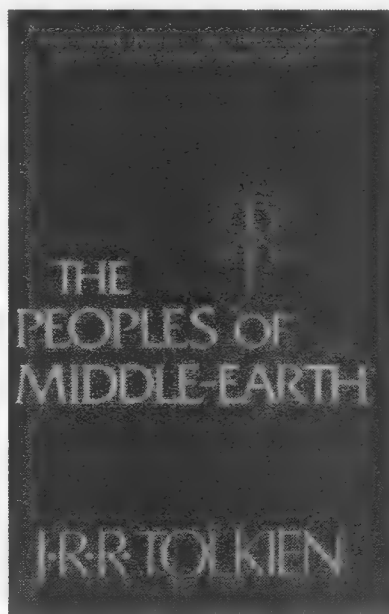
By Walter Jon Williams

HarperPrism, 1997

498 pp., \$22.00

Walter Jon Williams's *Metropolitan* was one of the best books of 1995. *City on Fire* is better.

The world of *Metropolitan* is a funny one, somewhat cyberpunkish, but without many computers. Its set far enough in the future that Earth is completely unrecognizable and the names of peoples and places have all

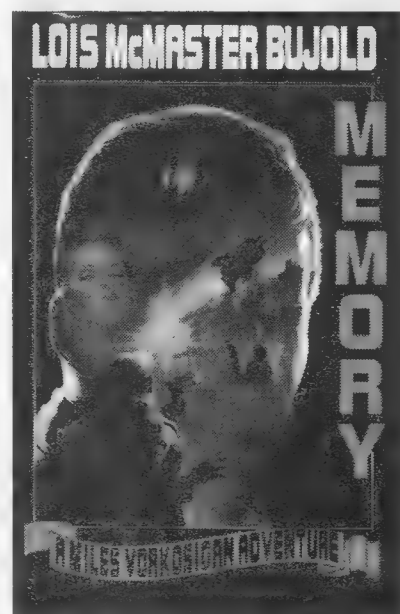


enough Plasm.

In *Metropolitan*, Aiya a young woman who works for a municipal Plasm authority, discovers a huge cache of Plasm. She should turn it in to her authority, but instead she turns it over to the adventurer Constantine, who uses it (and her) to overthrow a fairly nasty government elsewhere.

Metropolitan was well-crafted. It stood on its own, yet it permitted (but didn't demand) a sequel, and the issues raised were basically resolved within *Metropolitan*.

After the revolution, Aiya discovers that she can't go back to checking Plasm meters for thefts and returns to Constantine and the city whose government she had helped to topple and asks for a job. That decision and its consequences is the driving force of



mits but does not require a sequel. It's not a stand-alone book, though; I recommend you read *Metropolitan* first.

Williams has told two interesting stories in a highly realistic and fascinatingly well-realized alien world.

Rating: ★★★★★ 1/2

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think about it.

Books I Brought Home from the Conventions (And Couldn't Get Anywhere Else)



One of the delights of science fiction conventions for the bibliophile is the discovery that, in the book-dealers' rooms there, you can get a vast variety of books and magazines which are simply *not* in your local Barnes & Noble, Walden Books, or whatever.

What I am talking about are specialty-press books. A "specialty press" is the same as a "small press" or "independent" publisher: a private firm, usually made up of one or two or three people who put up their own money to publish books. In our sense, they are such firms specializing in SF or fantasy. Specialty presses are quite the opposite of your typical mass-market paperback publisher, which is owned by some huge corporation and may constitute only a very tiny percentage of that corporation's activity.

Specialty presses are usually labors of love, or at least they start that way. They usually begin when someone wants to see a certain book on the shelf badly enough that he puts it there himself.

This is not to suggest that specialty presses are amateur or vanity outfits, that they put out otherwise unpublishable material, assembled by stumblebumps.

On the contrary, their product is frequently far superior to that of the mainstream publishers, both editorially and physically. Specialty presses often bring out books that are just too avant-garde for the perceived mass audience, such as the works of R.A. Lafferty. As for production values, they are just about the last preserve (in fiction at least)

of the full-cloth, smythe-sewn hard-cover book. They frequently have color interior illustrations, something unheard of in the adult mainstream press.

The tradition is already old. William Crawford made some fairly amateurish efforts at publishing books in the 1930s. His greatest accomplishment was the only book of H.P. Lovecraft's work published in that author's lifetime, *The Shadow Over Innsmouth* (1936), for all it only sold about a hundred copies. The same year, Conrad Ruppert published a very limited memorial edition of the work of Stanley Weinbaum, *The Dawn of Flame*.

The Depression being what it was and SF fans being hard-pressed for the twenty or twenty-five cents it took to buy a new SF pulp magazine, times were not ripe for specialty publishing, but the urge remained. At the time there was no book market for material from the science fiction or fantasy magazines. Realistic fiction ruled the land of "literature," and while a few older, established figures like Lord Dunsany or James Branch Cabell could still get a fantastic novel into print, the contributors to *Astounding* could forget it, all considerations of quality aside. That meant that a science fiction novel was serialized in a magazine, and as soon as the final installment was off the stands, it was gone, presumably forever.

What motivated a lot of the earliest specialty publishers was the desire to preserve the "classics." Think of them as Dark Age monks scribbling frantically to transmit valued text to a hopefully brighter future. (And also, admittedly, to make it available to the present. In 1945, if you wanted to read E.E. Smith's landmark space opera, *The Skylark of Space*, you had to find the increasingly rare 1928 issues of

Amazing in which it had been serialized. Then Buffalo Book Company brought it out as a book in 1946.)

The real breakthrough came in 1939 when August Derleth and Donald Wandrei founded what is still one of the leading specialty publishers, Arkham House, for the purpose of preserving the works of H.P. Lovecraft. Derleth and Wandrei's productions were far more professional-looking than those of Crawford or Ruppert, and, to some degree, they managed to get their books distributed, reviewed, and sold, although to this day distribution remains the chief obstacle in specialty publishing. The only thing that's changed nowadays is that the convention system is large enough that you actually *can* sell out an edition of a thousand copies at cons and through the mail, even if the big wholesalers won't touch you.

Arkham House began with Lovecraft's *The Outsider and Others* and flourished, ultimately publishing the first books of writers as diverse as Ray Bradbury, Fritz Leiber, and A.E. van Vogt. Arkham continued to emphasize the *Weird Tales* school until 1971, when August Derleth died. James Turner, who edited Arkham House from 1975 to 1996, steered more toward science fiction.

After World War II, a lot of SF fans tried to do what Derleth and Wandrei had done, with varying degrees of success financially, but, overall, with a great deal of success. The work of Gnome Press and Fantasy Press and Prime Press and all the others was of enormous historical importance. Some of those books they preserved for future generations actually *were* classics. They published the first hardcover editions of Robert Heinlein, Isaac Asimov, Robert E. Howard's Conan series, and many others which in

Rating System

| | |
|-------|-------------|
| ★★★★★ | Outstanding |
| ★★★★ | Very Good |
| ★★★ | Good |
| ★★ | Fair |
| ★ | Poor |

subsequent decades went on to sell millions of copies. Incredible as it may seem, there was a time when *The Foundation Trilogy* could only be published by Gnome Press.

By about 1950, these specialty publishers became victims of their own success. They demonstrated that there *was* a market for science fiction, so the big publishers moved in, and before long Heinlein and Asimov were over at Doubleday.

Still the small press phenomenon continues, like water seeping into cracks, filling whatever niche the big-time publishers neglect. Specialty publishers continue to bring out deluxe editions of classics, a lot of short-story collections by often very prominent authors — since it's the received "wisdom" in mainstream publishing that story collections don't sell as well as novels — and quite a bit more. A major motivation continues to be preservation. Underwood-Miller and later Charles Miller devoted a great deal of effort to permanent, hardcover editions of the work of Jack Vance. Donald M. Grant has been publishing Robert E. Howard for decades, including deluxe, coffee-table Conan books that you won't find in most stores.

(But I pause to point out that a competent clerk at an independent bookstore *can* get much of this material for you. Those at the big chains can usually only get what shows up on their computer. The best way to get specialty books continues to be at conventions, or through the mail.)

Why, you might ask, am I lecturing the readers of *Aboriginal* about this history, possibly interesting as it might be?

Because I think we're entering into a period in which the specialty presses will be (for a while at least) more important than ever. Because the bestseller mentality has driven most of the mainstream houses to abandon large sections of our field, including virtually the entire backlist.

It works like this: Paperback Publishing House, which is a subsidiary of Engulf and Devour, which is partially owned by Hackaslashi and Alhazred Ltd., is a small department in a very large corporate structure. The board of directors isn't actually interested in

books, let alone *literature*. Paperback Publishing House is visible to its owners only as a sales chart, and as long as the numbers are as high as possible, Paperback Publishing House will be allowed to continue. The bottom line is truly all that matters.

Right now, bookstore distribution is moving in the direction of monopoly. A very small number of distributors tell the publishers what they will take. If they won't take it, it doesn't get published. Distributors also tell the publishers how many titles they'll take per month.

So if Paperback Publishing House has ten slots a month to fill, the editor had damn well better fill those slots with books which not merely make money, but make the *most* money possible. That means big, new novels by famous names, or sharecropped books exploiting famous names, or sequels to books that have sold well in the past, or tie-ins to famous TV series. You get the picture.

What they do not particularly want includes reprints of really neat novels from 1947 issues of *Startling Stories*, collections of short stories by dead writers, or even most reissues. That is why virtually the entire backlist of science fiction is being allowed to go out of print.

In 1970 or so, James Blish mentioned in a letter to a fanzine (*Speculation*, I think it was) that, after eleven years, one of his short-story collections had finally "died the death" and actually gone out of print. Think of it. A short-story collection by a midlist author remaining in print in mass-market paperback (Blish's main publisher at the time was Ballantine) for *eleven years*. Nowadays he'd be lucky to have it in print for eleven months, or at all.

In the old days, there were no science fiction bestsellers. Any science fiction book sold pretty much as well as any other. So, with minimal effort (and admittedly minimal money to the writer), the editor of a science fiction line could put anything he wanted into his designated slots for the month. Anything. The result was that we baby-boomers grew up taking for granted that the entire history of science fiction, from the interplanetary romances of the Munsey magazines up through the

Golden Age of *Astounding* to the present, would be constantly available in paperback. We didn't find it at all extraordinary that such great collections as Avram Davidson's *Or All the Seas With Oysters* or R.A. Lafferty's *The Nine Hundred Grandmothers* would have mass-market editions.

Not any more. How many James Blish books, even his major novels, are still in print?

That's where the specialty press comes in. Now, more than ever, specialty presses are needed to preserve science fiction's past. NESFA Press, for instance, is doing a wonderful job, keeping the entire corpus of Cordwainer Smith's SF in print. They've also published an omnibus of Zenna Henderson's "People" stories, are planning Murray Leinster and C.M. Kornbluth volumes, and a lot more. And, shades of the 1940s, if much of the first wave of specialty publishing was motivated by a desire to pass on the works of E.E. "Doc" Smith on to another generation (and it was), nowadays the Lensman series is no longer available in mass-market editions, but Old Earth Books will be bringing them out again, in facsimile reprints of the original Fantasy Press editions. We've come full circle.

Specialty presses continue to publish new writers (particularly collections by new writers), all manner of associational items such as autobiographies and critical studies, and "rediscoveries" of old-time writers whose works were never collected. If I had the time and money, I'd be doing it myself. I've got a wish-list. I'd like to see Marvyn Wall's *Fursey* books available. They are the best humorous fantasies I know and rare to the point of nonexistence. I'd like to do whopping big omnibus volumes of Lord Dunsany. I'd like to collect all the stories of Edgar Pangborn, Keith Roberts, Richard McKenna, and quite a few others into complete hardcover editions. I'd like to see a volume of the fantasies of the brilliant *Unknown Worlds* writer Jane Rice. Or how about a collection by that forgotten, but very interesting British writer of the '60s and '70s, David Redd? There are many, many more, both old-time writers and contemporaries, worthy of specialty-press

attention.

Maybe one day Old Earth Books will start a line of out-of-print Hugo-winning novels.

It's up to the specialty publishers. Very little of this stuff will ever make its way into Barnes & Noble.

So you have to go to conventions. One of the delights of conventions for me is that publishers hand me books, hoping I will review them. Here are some I recently brought home from the cons:

Time and Chance

By L. Sprague de Camp
Donald M. Grant, 1996.
444 pp., \$35.00

L. Sprague de Camp is one of the few survivors of the pre-World War II "Golden Age" of science fiction, so, for historical reasons alone, his autobiography is welcome. Here's first-hand information from the era in which modern science fiction was born.

I'm not sure if you'll find this book as interesting as I did, at least not in the same ways. I have a bias. I have been on friendly terms with the de Camps for over twenty years. I am a frequent visitor at their Villanova home and sometime dinner guest. I attended their 50th wedding anniversary banquet, at which Sprague got up and quipped, "It's not much for me to say I can lick most men my age, because most men my age are dead!" Since my teens I've looked up to Sprague de Camp as an example of someone who has managed his life and career with aplomb and considerable success. Which is not to say I was ever important enough to be mentioned in a book like this one (I am not), since the de Camps have a lot of friends, but it does mean that I'm reading this autobiography to see the development of somebody I know and respect. There are revelations here of things I'd been told in confidence (without much detail) years ago, such as Sprague's disastrous first marriage and the genuinely terrible death of his brother in an auto accident. I also remember a remark Sprague made some years back, that he was working on his autobiography, but wanted to wait until certain family members had died before releasing it.

"Tell all your best travel stories,"

I said. "Think of Lord Dunsany's autobiographies. Concentrate on the good parts, the places you've been, the famous people you've met, the interesting things that have happened to you."

He didn't need me to give him that advice. Here we have the definitive version of the famous Camel Head story, how Sprague got chased by a hippopotamus in Uganda (and outran it, in his upper fifties), anecdotes about John W. Campbell and other "Golden Age" figures, but also ones about Gypsy Rose Lee, entertaining royalty, and visiting Dunsany Castle. He goes to some length to explain how this or that person or incident figured in his fiction. Sometimes I'm left wondering if this last is the result of a lifetime of dealing with the IRS, since Sprague has long been a master of



turning travel expenses into deductible business expenses, with published books to prove it.

There are also unpleasant, but important things. The death of his brother. The death of his mother, who died at half Sprague's present age of a combination of pneumonia and Christian Science. ("Although I take a benign if skeptical view of most religions, against Christian Science I have a lasting animosity. But I suppose I ought to moderate my venom . . . By killing off its devotees, Christian Science serves as a minor check on population growth." p. 86.) He also manages, without mentioning any names, to tell the

story of his battles with A Certain Evil Cult, whose devotees wanted to shut him up, because he knew their founder a little too well. To this end, the cultists placed an anonymous letter in local mailboxes, warning neighbors of a dangerous lunatic (the physical description matches Sprague) who leapt out of a car for no reason, snatched a kitty out of a little girl's arms, and killed it. (Text on p. 387.) I remember this happening. Sprague and the police had a good laugh. I still have one of the letters. The whole thing had been the climax of a harassment campaign during which de Camp's name and address were placed in cat lovers' magazines and the result was a deluge of cats, pictures of cats, etc. Sprague is allergic to cat fur. The cultists apparently thought it would drive him over the edge. Instead, he turned the affair into a story, "A Sending of Serpents."

So, what you get in this book is the familiar, sprightly de Campian wit, a lot of anecdotes and inside literary information, and a few surprising outbursts ("This is bullshit!" about a relative's supposed virtues). It does a very good job in showing how Sprague de Camp got to be who he is today, and that, to my mind, is what an autobiography is supposed to do.

Buy it in this edition. *Time and Chance* probably isn't going to have a mass-market edition, given the present publishing climate. The Grant edition is his usual, oversized, sumptuous job, illustrated with photos, if considerably less well proofread than it should be.

While I read this one way, I think it'll be of considerable interest even to people who only know the de Camp name from such classics as *Lest Darkness Fall*.

Rating: ★★★★★

*Rubber Dinosaurs
and Wooden Elephants*
By L. Sprague de Camp
Borgo Press, 1996
144 pp., \$25.00 (cloth)
\$15.00 (paper)

This is almost an appendix to the above. It's a collection of miscellaneous essays on mostly literary topics, reprinted from sources ranging from *Amra* (George Scithers's sword-and-sorcery fanzine) to *The*

Humanist. There are a couple of articles about the silent film era (I had not realized Sprague was a movie buff), and much about H.P. Lovecraft, Robert E. Howard, Edgar Rice Burroughs, historical misconceptions, researching *The Great Monkey Trial* (Sprague's definitive history of the Scopes Evolution trial), the invention of the military-industrial complex (in ancient Syracuse), non-existent books (*The Necronomicon* and its kin), and more. All of it's in de Camp's lively, popular style and makes good reading.

Let me suggest to collectors that this book, particularly in its hardcover first printing, is going to be one of the rarest volumes by any major SF writer of our time. Borgo is a library publisher and virtually binds copies to order. The print-run of that first edition may well have been as low as a hundred, and gone mostly to libraries.

Rating: ☆☆☆☆

Time Burial

By Howard Wandrei

Fedogan and Bremer, 1996

315 pp., \$29.00

Donald Wandrei (1908-1987) was an associate of H.P. Lovecraft who wrote promising work for *Weird Tales* as a young man, then tried to go mainstream after World War II, failed, and stopped writing. His most significant contribution to the field was as the co-founder of Arkham House, but gradually Arkham became August Derleth's (seemingly) sole property, which caused much legal wrangling and bitterness in Donald's later years.

Howard Wandrei was Donald's younger brother. He died in 1956 after a hard life that included a time in prison, alcoholism, a messy divorce, and quite innocent involvement in a celebrated publishing scandal in the course of which the guilty parties (who had been scamming their boss by drawing money for unwritten stories) burned a good deal of Howard's work in an attempt to cover their tracks. Howard was also a graphic artist, praised to the skies by Lovecraft (whose judgments on art are not to be trusted; he effused similarly about Clark Ashton Smith's primitive daubings) but, by and large, not seen since.

In Donald's bitter, last years, many things were said: that the Wandrei family was suppressing both brothers' work, that Donald was sitting on a hoard of the finest weird drawings in existence, breath-taking masterpieces which he threatened to burn before he died ... well, these were merely what was rumored. Apparently Donald burned nothing, and even let mail pile up unopened for decades. He was eccentric and difficult toward the end certainly, all of which only contributed to the legend of the lost works of Howard Wandrei.

Now we have them. Fedogan & Bremer is a specialty publisher devoted to what Arkham House used to do, decades ago. They reprint and collect the works of pulp writers. They are launching a major Howard Wandrei campaign. *Time Burial* (once announced as an Arkham title) is the first of perhaps two volumes of fantastic fiction. *The Last Pin* (\$29.00) is perhaps outside the range of this column, just noted. It is a collection of lurid mystery stories of the hardboiled type. More such volumes will follow.

After he died, hardly anyone knew who Howard Wandrei had been. He wrote mostly under pseudonyms, for the pulps. It now seems that he wrote far more for the pulps than was previously suspected. But was his work any good?

Not really. His most respectable fantasy publications were in *Weird Tales* and *Unknown*, although he was hardly a major contributor to either. "The Hexer" (from *Unknown*) is about a mysterious man who can hex people as they deserve, giving a snoop reporter a foot-long nose, a gossip a cat's tail, etc. It's all amusingly told, but doesn't develop or resolve. A 19-year-old Isaac Asimov wrote in to say, "It gives you a feeling of frustration because, of course, I was looking forward to an ending where everything was hunky-dory again." I don't insist on hunky-doriness, but I *do* want an ending. Many of the other stories aren't nearly that good. It is hard to imagine a more thoroughly inept, illiterary effusion than "The Hand of O'Mecca" ("Sounds like an Irish Arab," Lovecraft commented at the time), in which the hero gets the hand of his true love (she's a werewolf) but not the rest of her, amidst

some of the worst style ever perpetrated in the pulps. I'm not sure if it's supposed to be funny, but it's Kirk Poland Memorial Bad Prose Competition material. I'm afraid few of the other stories inspire much admiration.

The conclusion I come to is that Howard had nothing of his brother's more poetic sensibility, but a lot more energy, and was frankly at his best writing trash, pre-Spillane, hard-boiled mysteries and soft-core porn (this for the *Spicy line* of pulps), which he executed with some gusto. While the revival of his work may be a banner event for pulp nostalgists, it is not going to cause any literary histories to be rewritten.

Then there's the matter of Howard's legendary artwork. The color drawing for the dustjacket is actually quite attractive. The interiors vary. Howard Wandrei was not a unique genius as an illustrator — though by the standards of most *Weird Tales* art, he must have seemed like one — but an able practitioner in the post-Beardsley school of decadents, not as good as Harry Clarke or Wallace Smith, but somewhat superior, I think, to Mahlon Blaine. He could have been right at home in the '20s and '30s, illustrating deluxe editions of allegedly racy classics, as was the fashion then.

Rating: ☆☆☆

Standard Candles

By Jack McDevitt

Tachyon Publications, 1996

250 pp., \$25.00

After wading through the turgidities of Howard Wandrei, it was quite a relief to turn to a writer of clear, graceful prose, whose ideas are genuinely interesting. McDevitt is a midlist author. Several of his novels are widely respected but not best-sellers. As a consequence, he is unlikely to have a mass-market edition of a story collection, despite the obvious merit of the material.

The general public is missing a lot. The stories are mostly taken from Asimov's in the '80s, and remind one, particularly, of the work of Gregory Benford. Here's another writer who both is *literary* (meaning stylistic, substantive, subtle) and knows his science. He excels at writing about the people who *do* science. You can argue that the title

story isn't quite science fiction, but it is a fine story of the conflict between a scientific career and one's personal life, as is "Tidal Effects," which *is* science fiction. McDevitt also has an eerie ability to make the familiar strange. If his characters mind-warp themselves to another galaxy and find a civilization very much like our own, in which the leading playwright seems to have plagiarized Sophocles, that sounds just silly, doesn't it, like a bad *Star Trek* episode? We would expect the truly alien on a distant world. McDevitt, far from being lazy, is one of the few writers ever to contemplate how strange and disturbing the discovery of the non-alien would actually be. (He does it again in a story called "Black to Move.") And so on. Here is a eloquent, challenging writer of short stories, well worth discovering.

Rating: ☆☆☆☆

Noted:

H.P. Lovecraft: A Life

By S.T. Joshi

Necronomicon Press, 1996

704 pp., \$20.00 (paper)

This is a major, massive work of scholarship which will probably be the landmark book about Lovecraft for decades. I would like to talk about it in more detail, and probably will, but space does not permit. Suffice it to say that when Joshi says, early on, that Lovecraft was one of the best-documented human beings who ever lived, he proceeds to prove it, and my ultimate reaction was "I don't know that much about *my own* life." Indeed, it would seem that if HPL were ever out of range of the biographer's vision for more than a few days, this would constitute a Lost Period.

Which is not to say this is a volume of obsessively compiled trivia. Far from it. It is virtually a rediscovery of Lovecraft, who *is* a major writer, whose reputation continues to grow worldwide, and who will be rediscovered and re-evaluated for probably hundreds of years. Joshi is at his best tracing the development of HPL's aesthetic and philosophical thought and demonstrating that development through the author's work. He is not uncritical, either of the work or the man. He is particularly unsparing on the matter of Lovecraft's racism, which, if it may

be blown out of proportion, was also *unscientific*, something hard to forgive in a man who always claimed to be a detached, scientific observer of the human species. HPL's prejudices were a matter of his class and his time, and, like most of us, he didn't manage to transcend all of them.

This is a very readable but *heavy* book (more than physically, though the massive tome would crush many a bug). It is not an introduction for someone who has read maybe one HPL paperback. It is an advanced text, the best there is, and would be ideally suited for a graduate course on Lovecraft. The real tragedy, for all I admire and support Necronomicon Press, is that this book was not published by a major university press, which would have given it the library distribution it deserves. But, once again, where the big presses have failed, a small press takes over, like one of those Dark Age monks, scribbling away so that this knowledge will not die.

Rating: ☆☆☆☆☆

Neat Sheets

By James Tiptree Jr.

Tachyon Publications, 1996,

26 pp., \$6.50

This slim booklet collects hitherto unpublished poetry (and a farcical playlet) by Alice Sheldon, who was known to the SF world as James Tiptree Jr. She was a complex, often lonely woman who worked for the CIA, had several identities (sort of), and wrote this poetry in the '40s or '50s. Some of the poems are powerful and lucid. Others probably had private meaning. They form a footnote to a significant career.

Rating: ☆☆☆☆

The White Papers

By James White

NESFA Press, 1996

395 pp., \$25.00

All Judgment Fled

and *The Watch Below*

By James White

Old Earth Books, 1996

190, 192 pp., \$15.00 each

James White was guest of honor at the Worldcon in Los Angeles last year, and, while major publishers seldom can respond so quickly or flexibly, there was a flurry of small-

press activity to meet the event. *The White Papers* is the convention book, specifically intended for attendees. It is half a collection of the author's best stories, many in his famous "Sector General" series. They are effective, often charming "hard" SF stories, often with a medical slant. The rest of the book reveals another side of White which most readers probably never suspected: White the fanzine writer. He was (and is) one of the greats, a master of the humorous personal essay, a contemporary of Bob Shaw and Walt Willis, who, in Northern Ireland in the '50s, raised such things (fanzine publishing, the fannish essay) to a pinnacle never again reached. Not to be missed.

The Old Earth titles are reprints of two of White's best non-Sector General novels. *The Watch Below* was a Hugo nominee. It's about a group of people who survive underwater in a "generation ship," a tanker sunk in World War II. They turn out to have a lot in common with aliens coming to colonize the Earth's oceans. It's a gripping read, and, rather remarkably, the reader's credulity is not overly strained. *All Judgment Fled* is blurbed, like *Watch*, "a novel of first contact." It's a solid, less flamboyant version of the *Rendezvous with Rama* scenario, written first, in 1968.

Back in the old days, these would be the sort of books Ballantine or Ace would keep in print indefinitely. Those days are gone. Be grateful to Old Earth Books for doing what they can.

Ratings:

The White Papers ☆☆☆☆

The Watch Below ☆☆☆

All Judgment Fled ☆☆☆

Publishers' addresses: Donald M. Grant, P.O. Box 187, Hampton Falls, NH 03844. Borgo Press, P.O. Box 2845, San Bernardino, CA 92406-2845. Fedogan & Bremer, 603 Washington Ave., Suite 77, Minneapolis, MN 55414-2950. Tachyon Publications, 1459 18th St. #139, San Francisco, CA 94107. Necronomicon Press, P.O. Box 1304, West Warwick, RI 02893. NESFA Press, P.O. Box 809, Framingham, MA 01701. Old Earth Books, P.O. Box 19951, Baltimore, MD 21211-0951. □



Mission of Gravity Revisited

Take another look at the cover of this issue of *Aboriginal Science Fiction*. Does that odd creature pictured by Tennessee-based artist David Deitrick look familiar to you? If you're a fan of classic hard SF, it should. This quarter's cover illustration is a portrait of Barlennan, the heroic alien explorer of Hal Clement's novel *Mission of Gravity*. First published as a serial in *Astounding Science Fiction* in 1953, the book is arguably Hal Clement's best science fiction novel. The story is built around Mesklin native Barlennan's arduous journey to salvage equipment from a human spaceship which has crashed on the other side of the planet.

Hal Clement is the pseudonym of science teacher and veteran hard SF writer Harry Clement Stubbs, a familiar face at conventions, particularly on the east coast. You'll often find him on panels discussing the importance of rigorous scientific accuracy in SF world building. "When I begin a book, I always design the world first," Stubbs says. "Partly that is because it's important to me to have a setting which is scientifically valid. The other reason has to do with my own dissatisfaction with using things the way they are [here on Earth]. I want to make a world of my own."

Stubbs began *Mission of Gravity* with a challenging task:



Hal and Barlennan

to design a world where gravity varies from 3 gs at the poles to around 700 gs at the equator. "I calculated the gravity at each latitude — using a slide rule, of course," the author chuckles dryly. "And I incorrectly assumed that the planet's high rate of spin would deform it, flattening it at the poles and producing an enormous equatorial bulge. Later on I realized that the planet really wouldn't look like that at all."

Once Mesklin had been "built," it was time to populate it. Such extremes in surface gravity made for some interesting life-forms. Physically Barlennan is typical of his race. In the book he is described as an arthropod with a tough exoskeleton, about 15 inches long and 2 inches in diam-

eter. (Note the use of English units instead of metric.) His pincher "hands" at front and back allow him to grip and manipulate equipment aboard the trading vessel he captains, and like most of the saner members of his species, he never, ever stretches upright to his full length, or takes shelter underneath another object; on a world like Mesklin, such activity can lead to nasty accidents.

Stubbs recalls that *Astounding* editor John Campbell liked *Mission of Gravity* so much "he paid me a special rate. I think his regular rate was three cents a word, but he paid me four cents a word for that story." In 1954

Doubleday published the novel in hardback, and since then Barlennan's journey has captured the imaginations of thousands of readers, readers like illustrator David Deitrick, who fondly remembers reading the SF classic when he was about 11 years old.

"It was the first science fiction novel I ever read cover-to-cover," Deitrick says. "The grocery store had thrown it away. It had no cover, just the title page on the front, so I had no idea what it was about. But when I sat down and read it, I thought the story was just so cool."

An experienced painter and illustrator, Deitrick got into sculpture relatively recently. "Though I think I was always

interested in it, I never seriously sculpted until I got into graduate school at the University of Tennessee. There I became aware of a whole new sub-category called 'dimensional illustration' that combines sculpture and a thematic style. It's very involving, very kinesthetic, and you get to use a lot of different techniques within one piece. Since then I've been looking for more opportunities to create and sell this kind of work professionally because for me, sculpting is a lot more satisfying than painting."

Deitrick didn't think of modeling Barlennan until the early '90s, when he was on a convention panel about designing aliens in an alien environment with Stubbs and Allen Steele and a few other people. "I started doing a sketch of Barlennan and Allen Steele held it up as an example for the audience. No pun intended, that's what put the bug in my ear to do this."

Stubbs says he really didn't know anything about Deitrick's project until he was presented with the result at Rising Star 3, an SF convention in Roanoke, Virginia. "I was delighted, of course. I never made any drawings or models to work from when I was writing the book. I just had a clear image in my head of what the Mesklinites looked like. David did a good job of following the descriptions I'd given in the books (*Mission of Gravity* and its 1971 sequel, *Star Light*). The only difference really was the colors."

"Yeah," Deitrick agrees. "In the book, Barlennan was red and black, but I just wasn't very excited about working in red and black, so I cheated a little bit. I pushed the red to magenta. And I didn't want to use black because I knew his body would burn out completely when they photographed him, so I opted for a sort of blue-gray. I explained to Harry why I'd picked the colors I had, and he was kind enough to



Barlennan ready for his mission

grant me official 'artistic license.'"

For a future project, Deitrick says he'd like to sculpt a warrior Motie, one of several specialized creatures in the novel *A Mote In God's Eye*, by Larry Niven and Jerry Pournelle. "I've been reading about a technique where you build up a skeleton out of wire and then stitch fabric over the top. I'd really like to do it, but it's going to be one of those projects where everything stays on the back burner until I get so obsessive about it that I finally haul it out and make it."

While Stubbs is happy to see Barlennan take shape in real time and space under an artist's hands, he ruefully admits that he would have preferred it if some-

one had modeled a character from one of his more recent books. "*Mission of Gravity* seems so long ago now, it's even hard for me to remember everything about it."

Just in case any curious artists are eager to try the task, Stubbs points out his 1987 novel *Still River*. "There is a group of five characters in there, including one human and four very decidedly non-human characters. I've always thought they would look good done together as a group portrait, rather like the ones you see in promotional shots of the crew from *Star Trek*."

Who knows? Maybe this might be a another good subject for a future *Aboriginal SF* cover. □

Orangutan-Based Technology



For those who have been long-time readers of this magazine, and of this column in particular, you may remember that on occasion I deviate from the standard science column format, and instead of rambling on about the latest and greatest discoveries and controversies in the world of science (volcanic-vent worms, misfiring synapses, quantum mum-bo-jumbo, Martian microbes — all those standard science column-type topics), I'll go on a rant about how scientists function (a bit of an oxymoron there). In the past, I've written about how scientists are born through the miraculous process known as graduate school, as well as revealing the disgusting little details on how they report their breakthroughs at scientific conferences. I've tried my best to paint for you a true picture of what a scientist is really like — the sort of person who inserts pocket protectors into said pockets, one at a time, just like your average Joe Citizen.

However, what I've come to realize is that I have in fact been neglecting one of the most fundamental — no, *the* most fundamental — topic when it comes to scientists and the world they inhabit. I am not alluding to IQ, RAM-envy, dandruff, or even the sacred View Graphs through which they present information to their colleagues. This topic dwarfs all others. And the reason that I haven't touched on it, is because this aspect of the scientist's life is so basic, so all pervasive, that after awhile the neo-cortex of a scientist's brain no longer dwells on it, in just the same way that they do not require conscious thought in order to breathe, blink, scratch, or scream Eureka during moments of scientific ecstasy. What am I talking about?

Funding.

Funding.

Funding.

Funding.

Sorry about that. I experienced a bit of brain-lock — that word mesmerizes me. It was only due to my nearly superhuman abilities of concentration, and the annoying glint of sunlight reflecting from my pocket protector and then nailing me square in the eyes, that I did not fill the next several pages with that magical word.

You see, like the balding president of the Hair Club for the Follicularly Challenged who sports Elvis Model #364 with optional Velcro sideburns, I am also doing double duty — not only am I your science columnist, but I'm also a scientist.

I need funding.

All the time.

As much as I can get.

I've spent nearly two decades in both university and industrial labs, fabricating the semiconductor guts to be used in next-generation electronic and optoelectronic systems — the sort of things that will someday allow you to converse with your toaster, have *Gilligan's Island* reruns fed directly into your retina, and ensure that a missile launched from the middle of the Indian Ocean will be able to smack a Third-world dictator square in the posterior, transforming him into a mound of charcoal, while not so much as singeing a hair on the head of that cute little orphan sitting in his lap as publicity photos are being snapped.

Yes, it's true. I am a pawn of the military-industrial-entertainment complex.

And I need funding.

Why should you care?

The impact on your life if I get funding for my particular little scientific fetishes will in all likelihood not amount to a hill of beans (actu-

ally, an entire hill composed of beans might be worth quite a lot — I need a new metaphor — perhaps a hill of science columnists). What you should care about is the manner in which research is funded in this country, since this will not only determine our economic status and viability in the 21st century, but may very well determine whether future generations will be terraforming Mars, tweaking genes in quest of supermen, visiting the last ozone molecule in the Museum of Natural Oddities, downloading the contents of their skulls into kitchen appliances, or fighting over rat scraps. (I make no judgments on any of these activities — these are just possible futures.) Research, in whatever form it takes or doesn't take, will determine all of our futures.

And all research requires funding.

Funding for research and development comes in two distinct forms. The first is that supplied by a private company for its own internal needs in the hope that said research and development will lead to a new or improved product which will result in an increase in revenue, and hopefully an increase in profits, inflated stock prices, and CEOs who can pull down more than \$10 million annually. In the good old days (by definition this is a chunk of the space-time continuum which precedes the writer's own continuum by 1-3 generations), private industry was stocked to the gills with visionaries who would pump billions of dollars into any and everything, hoping that sometime in the future a small fraction of these research and development projects would result in a product that the company would find useful. The prime example of such a utopian research environment

would have been the Bell Telephone Laboratories during the '40s-'70s, when such mundane little doodads as the transistor and the laser were being developed.

Those days are gone.

Dead.

Today's corporations are driven more by the quarterly bottom line than ever before. During the 1980s I worked at the Hughes Research Laboratories in Malibu, California. When I first joined in the early 1980s, this was the sort of place that employed people like Bob Forward (SF writer and gravitational astronomer), who rose through the ranks to become the lab's chief scientist. I remember attending many a Thursday afternoon seminar in which Bob would give talks on the most esoteric of topics — gravity detectors, sucking energy directly out of vacuum, time travel, faster-than-light gizmos. The Hughes Aircraft company put up with such stuff. I doubt very much that our corporate masters at that time had any visions of an actual working time machine, or a neat and tidy little projection chart showing production of the Time-Boy Turbo™ slated for the fourth quarter of '87. They believed that a certain fraction of their resources should be allocated to people who were doing weird things — science things — things that in all likelihood would never add to the company's bottom line. They believed that for every 99 projects that went nowhere, one project would result in something wonderful, something important, something very profitable. And the price for this wonderful breakthrough was the support of the other 99 projects that never went anywhere.

Well, times changed. The Hughes Aircraft company was acquired by General Motors in the mid-'80s. By the time I left in the early '90s, research (I use the term lightly) was a highly focused endeavor, which was designed to support products and projects which the various Hughes/GM Divisions were working on (whatever you're working on had better have an airbag strapped to it somewhere). Inventions and innovations were scheduled as tightly as pro-

duction quotas at a jelly bean factory:

Give me three radar-based missile breakthroughs by May.

We want to see nine patents on collision avoidance radar by fiscal '97.

We need those beyond-state-of-the-art chips to be in orbit in 28 months.

The current corporate environment has little enthusiasm for the speculations of time travel — unless of course you can prototype it by the end of next quarter, guarantee mass-market applications, and show profitability in less than three years. And don't forget the lawyers. What is the litigation potential for such a device? It would only take one psycho sailing back in time, killing somebody's grandfather, and the lawsuits would come flooding in.

No funding for time travel.

Let's put our resources into something more practical, like quadruple-quilt toilet paper, or taste-free food. Better yet, let's just spend all our research dollars making those warm and fuzzy commercials that are aired on Sunday mornings, telling everyone how wonderful our inventions are, and not only tell how next year our toilet paper will be hextuple-quilt, but highlight the fact that the research team that gave us this breakthrough spends their weekends volunteering for the Humane Society and collecting canned goods for the unemployed (created by that corporation's last round of layoffs, no doubt).

Enough.

The bottom line here is that funding for research and development in the industrial sector is a highly focused endeavor, in which the corporate masters are looking for next-quarter payback, all the while treating research and development funding as just one more expense — like toilet paper and Christmas bonuses — where it's best to cut down all those frills in the never-ending quest to improve price-to-earnings ratios.

Now we come to the second basic source of research funds.

Care to make a guess?

It's not hard, is it? There is only one other source, and that is the government. As I write this, I see that Congress ap-proved the Federal '97 budget on September 30, 1996. Out of a multi-trillion dollar budget, what might you guess would be the amount that the Federal Government has set aside for research and development? Remember that these are tight financial times, that Republicans and Democrats alike make a lot of noise about balancing the budget and cutting down on wasteful spending. Perhaps a few billion dollars?

Hold on to your pocket protectors.

The 1997 Federal budget provides \$74 billion for research and development, a \$3 billion boost over last year. This is a huge amount of money, far greater than the gross national product of many countries.

And like any currently breathing scientist, I want my share. I deserve my share. I need new equipment (preferably with lots of blinking lights) to help generate new data, which will be used to fill up the papers that I will submit to prestigious journals, which upon publication will help dazzle my coworkers and be used as ammunition in quest of future funding.

Why is the government willing to spend so much money on research and development? Does it do it because of some intrinsic need to lavish vast sums of money on people with advanced degrees? No. Does it do it because it has a burning curiosity about the universe and desire to better understand the nature of all things? No.

I have a theory.

It is my own personal theory.

I believe that the government is a living, breathing, organic entity. And like all living, breathing, organic entities, it has the innate desire to survive, to live, to grow, to make damn sure that it will be here for centuries to come. Elections come and elections go. Politicians come and politicians go. But the government goes on and on. For the government to survive, it must make sure that the people are relatively happy. This means that these people must be reasonably healthy,

reasonably fed, reasonably entertained, and reasonably defended from those other governments which covet all our neat stuff. I am not saying that the government is some self-aware entity. Nothing like that. In fact, its chief strength is that it is not self-aware.

Would any self-aware entity fund research to investigate the relationship between the mass of alligator feces and Caribbean hurricanes, pay a group of Ph.D.s to design footwear for orangutans, or sponsor multiple efforts to squeeze diamonds together so tightly that they start to display metallic-like characteristics? Of course not.

Only the government would do such things.

But of course, it is also the government that was foolish enough to implement a space program which in turn created a billion-dollar satellite communications industry, and to give money to a few code-cruncher types to network computers together, and as a result started something that today has become the Internet.

Besides its lack of self-awareness, the other big advantage that government has over industry is that it is not really answerable for its actions. It is true that elections are held and that presidents are booted in and booted out, but have any of you ever voted into office a DARPA (Defense Advanced Research Projects Administration) contract monitor who is responsible for overseeing a \$50-million radar program? I think not. Are you even aware of that program? I doubt it very much.

There are no stockholders to answer to.

There are no concerns about quarterly profits.

The Air Force decides that it needs a new radar in order to defend our country from potential threats and attempts to sell the concept of this gee-whiz radar to Congress and the multitude of bureaucrats who work behind the scenes. Any congressman with a military base in his state votes yes. Any congressman with an aerospace industry in his state votes yes. Any congressman who has served in the military votes yes.

And then to really clinch the deal, a Third-world warlord helps out by attacking one of our embassies or making a grab for a resource that we consider vital to our national interests. The \$50 million is allocated.

Of course it should be noted that this radar will not only be good in the cockpit of Mach 2-type fighter plane, but will in all likelihood eventually see its way into commercial jet aircraft, make the airways safer for the flying public, and help increase US aircraft sales to the rest of the world, which in turn will help generate tens of thousands of aerospace jobs. Excuse me for not spouting the party line — but remember, I have admitted that I am a card-carrying member of the military-industrial-entertainment complex.

So \$50 million is sitting up in Washington, DC to build this new radar.

Enter me.

How do I get this money?

Before that can be answered, it is necessary to specify just who I am. At this point I will create a fictional persona, a composite of the many researchers that have crossed my path over the last few decades (you can't expect me to use myself — I wouldn't want this column to fall into the wrong hands and then to find my funding cut off by an ego wounded government-type).

Let's assume that you are a professor at Technical Tech in the great state of Middle America. We will assume that this is a first-tier school, right up there with Stanford, MIT, UC Berkeley. You are technically good, have received government funding in the past, and have not totally screwed up on what it was that the government wanted you to do with the money. You've written a good number of papers, have received a few awards, and have a lab with a bunch of decades-old equipment with which you try to do state-of-the-art research. You give good View Graphs. Your pocket protector is buffed to a high luster.

In short, you are a university professor.

Do you have any chance of getting that \$50 million?

No way.

So is that it? No.

Can you say consortia? Can you say multiple award?

In today's environment of big government, big projects, big budgets, going it alone can be a dangerous thing. This year you might win that \$5 billion dollar program while your competitors win nothing, their stockholders scream, and dump their stock, and the company goes bankrupt, getting flushed right down the toilet along with all the nifty technology that they'd developed over the last 50 years. Feast or famine. This year you may feast, while next year it may be your carcass that angry stockholders are feasting on because your competitors won the big contract.

In order to promote technology, and make sure that technology does not vanish due to corporate downsizing, it has become in the government's best interest to see that everyone stays afloat. You never know where that next brilliant idea might come from. There's always the remote possibility that one of those scientists working on those orangutan shoes might have a flash of insight, realizing that the individually digitized shoes fabricated for the orangutan might be applicable to jet-fighter foot-wear, allowing a metacarpally dextrous fighter jock to get off a few extra missiles by way of a toe-based launcher system.

It could happen.

The military often depends on such breakthroughs.

Therefore, the government wants to keep as many industrial and university efforts afloat as possible, while still getting the things that it needs — in this case that advanced radar system. When the government announces this new radar program, it lists out in great detail all the technical specifications of the new radar system — frequency, weight, volume, power in, power out, speed, accuracy, reliability — all those technical details that will make the thing work. But it also says that consideration will be given to those bids that show multiple approaches, that have formed a team comprising industry

(both of the megalithic variety and the start-up variety), government labs, and universities. They want you to build their radar, but they strongly recommend that all proposals be centered around a team approach. They want to see that money spread around.

What can our professor offer?

It so happens that he/she is an expert in growing the thin semiconductor films which are used in the fabrication of high-speed transistors, which can be used to generate high-power radio frequency beams, which is just what is needed in the guts of the radar system. Our friend the professor begins to drool.

Besides the mere technical abilities that the professor has, he/she has a potentially even more important item to bring to the party — slave labor.

As important as the technical content of any program is, the financial and accounting realities are just as important — sometimes more so. We have all heard stories about the government spending \$2000 for toilet seats, while at the same time reading about athletic-shoe conglomerates that set up factories in Fourth-world Asian countries where the maximum wage is 11 cents an hour, so a shoe can be manufactured for less than 50 cents. Why the big discrepancy?

Is the government just stupid?

Dimwitted. perhaps, but not stupid.

It all comes down to standard of living and overhead.

When the government is involved in that toilet seat, imagine if you will how many people are situated between the manufacturing of that toilet seat and the posterior that will actually sit upon it. There are the government inspectors to check out the toilet seat. There are the government truck drivers to transport the toilet seat. There are the government logistics analysts to plot toilet seat demand. Toilet seat requests have a special form — TSR #657, which must be filled out thirteen times, and only by a TSR specialist grade 9. I will not even mention the complications of correlating toilet seat requests with toilet paper requests, or the impact of the congressional LB (lower bowel)

subcommittee on export and licensing for toilet seats bound for military bases outside US borders. It takes a lot of people to get a toilet seat from the manufacturer to the military outhouse when a large bureaucracy is involved.

On the other hand, you can build a shoe in Malaysia for less than 50 cents a pair when your work force consists of shoeless, malnourished individuals who are willing to work 14 hours a day for the privilege of receiving enough rice and soybeans to sustain them for yet another day of work. Standard of living can really cost you. The US government does not take kindly to its high-tech equipment (whether it be radar systems or toilet seats) being built outside the US — there are a multitude of security-economic-political issues to contend with.

Then there is the overhead.

Take any major industrial manufacturing conglomerate, and you will discover that for every dollar that is paid to a worker, another \$1-3 are required to keep the business afloat. There are insurance, the cafeteria, the power bill, the secretaries, 16 layers of middle management, profits to stockholders, the janitors, the security personnel, equipment depreciation, profits to stockholders, light bulbs, coffee supplies, presidential private jets, and all the other incidentals that keep a corporation afloat. Industry has the know-how and the manufacturing savvy to build this new radar system, but for every \$1 that it pays its engineer or researcher to put it together, another \$1-3 are needed to insure that the candy dishes are kept filled in the corporate headquarters reception lounge.

Our professor smiles at industry's plight. It is true that the professor cannot harness the Malaysian work force, but he/she has the next best

thing — graduate students. These individuals receive no benefits and no perks, and they have to buy their own coffee. The equipment at the university is old and costs little to run. There are no secretaries, there are no security forces, and best of all there are no profits which must be divided amongst the stockholders. As a result, the university overhead is much lower than that of industry — typically \$0.50 for each \$1 spent. In addition, there is that big difference in standard of living. A typical graduate student might get paid \$10,000 a year for an 80-hour work week, while our industrial researcher is making \$60,000 a year for a 50-hour work week. Taking into account pay rates and overhead, you find that a graduate student costs about \$3.75/hour to work on a government contract, while the engineer in the industrial work force is costing about \$73/hour. That's a ratio of nearly 20:1.

Bring on the grad students!

The professor knows that \$100,000 a year would keep two grad students going full time, pay his/her summer salary, buy one or two pieces of electronics with a nice assortment of blinking lights, and generate enough data for a few of those important papers. On the other hand, \$100,000 in an industrial or government lab would cover the cost of one engineer for two weeks and allow for the replacement of thirty toilet seats.

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These are the economic realities.

It is at this point that the sniffing begins.

Industrial types begin to sniff around the universities for possible teammates, while our professor begins to sniff around likely industrial locations to see who might be interested. Even if it were not the desire of the government to encourage these types of partnerships, in order to ensure that a healthy, vital research capability is maintained, this process would still occur. Industry cannot afford to do the research that it once did, and will depend more and more on universities to do this, while the universities do not have the resources, or in many cases even the desire, to transform their research into products and profits.

It is the perfect symbiotic relationship — each feeding off the other.

So teams are formed — a well balanced mixture of big business, small business, minority-owned businesses, universities, and government labs. The proposals are written, describing just how the new radar system could be built, costs detailed to the last penny, the vitae of all the investigators included, and the political/legal correctness blessed by a boatload of lawyers. Twenty to thirty copies of the proposal are submitted to the government, and then everyone stands back and waits for the evaluation and the announcement of the winners.

How will the government decide whom to fund? One group proposes a daring approach in which the new radar system could be fabricated out of corned beef, recycled Styrofoam cups, and the novel use of orangutan-based digitated radar elements. Another team takes the more conventional approach of increasing the voltage on an existing radar system and throwing in a few more cooling fans to dissipate the increase in heat. Both proposals say it will cost \$50 million to build. How is the government to decide? Welcome to the process of Peer Review.

Note that peer is a four-letter word.

The government asks a panel of experts to fly up to Washington, DC, spend a weekend at the Airport Hilton, read through eighteen linear feet of proposals, consume five gallons of tar-like coffee, ingest more donuts than any ten policemen are capable of, and then pass judgment on the merits of the proposals. Does this sound reasonable to you?

Remember that these panel members must be experts in the area of experimental radar. Otherwise, how could they evaluate the technical merits of these various approaches? In addition, these panel members cannot be part of any of the teams bidding for the program — that would represent the ultimate conflict of interest. So what exactly goes through the mind of the reviewers as they read each of these proposals. I'll give you a few examples, letting you see what the reviewer is actually thinking about the proposal, and what he/she actually writes about it.

Proposal #1:

Thought — I can't believe that those guys from Big Aerospace Corp teamed with Professor Big Ego from the University of Podunk. Big Ego is an idiot. I know a hundred times more than he does about radar. He's the SOB who had the invited talk last year at the International Radar Conference. That talk should have been mine. I hate that guy. I hate his dog. He's also got bad breath.

Written comment — University team member does not display technical breadth to support complexity of the system approach proposed.

Proposal #2:

Thought — I can't believe this garbage. Here are these morons, proposing orangutan-based digital radar elements with corned-beef input buffers, when I clearly demonstrated back in '87 that only pork-based input buffers had the inductance and capacitance characteristics that would be compatible with an orangutan-based technology. They don't reference my work! The principal investigator received his Ph.D. five years earlier than I

did. He still has all his hair. He has an endowed chair!

Written comment — University team member does not display technical breadth to support complexity of the system approach proposed.

Proposal #3:

Thought — My old student Tommy Sliderule, is on this proposal. He's referenced all my old papers. This student was an idiot but he was my idiot. If he wins this I may be able to do a little collaboration with them, maybe even suck off a few dollars. I've got more hair than Tommy.

Written comment — university team member displays technical breadth to support complexity of the system approach proposed. In addition, University team member displays in-depth knowledge of the background of the problem. Possible concern — university team member may still require some advising from respected members of the radar community in order to ensure success of approach. I recommend proposal #3 be funded.

There you go.

All the reviews are tallied, and the results sent to DARPA, Congress, and all those faceless bureaucrats for evaluation and consideration. After many months of painful and excruciating analysis, the award is announced, and proposal #2 is declared the winner. It is noted by the losers that Senator Massive Ego from the state of Almost Middle America is the chairman of the Radar and Really Big Explosives appropriation subcommittee, and it is his state which is number one in corned beef production. Many of the cynical losers wonder about this connection, but quickly put it out of their minds.

The Navy has just announced that it needs a new radar system.

There is no time to loose.

Research and development money is at stake. □

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Humanum est errare

Humanum est errare. The words are in an ancient language called Latin. The last human being to speak it as a native died over a thousand Earth years ago. But human beings can be very conservative, and Latin continued as the language of diplomacy and scholarship long after the people who created it were gone.

Latin is no longer used in diplomacy, however, and hasn't been for a long time. These days, all the different countries conduct their diplomacy in their own languages. This means that international affairs are really just the relations among interpreters, but human beings seem perfectly willing to entrust important matters to people they don't pay well and usually don't even know. It is easier than learning Latin, I suppose.

In scholarship, for many generations, Latin functioned as a sort of shorthand code. It was once possible to impart an entire lesson in philosophy with a single Latin phrase. Let me give you an example.

"Post hoc ergo propter hoc" translates as "after this therefore because of this." Human beings learn this phrase in Philosophy 101, where it is used to describe what they regard as a logical fallacy. The lesson is usually given as follows: "He who has seen dogs chase rabbits and has never seen dogs and rabbits otherwise, will believe the rabbit caused the dog." Our planet has neither dogs nor rabbits, so you will have to think of this lesson in terms of bleezogs and skroots.

The philosophy student is expected to chuckle over this and regard it as an absurdity, with the result that human college graduates go through life believing that rabbits do not cause dogs, an opinion they share with no other creatures on this planet besides dogs.

As Latin has passed into disuse, they have changed the Philosophy 101 course, and students no longer learn "post hoc ergo propter hoc." Now they just learn "the rabbits and dogs thing."

Latin was eventually lost to diplomacy and scholarship and survived

for some time only as the language of intimidation. If you wanted to put a human being in his place, you would say, "opere citato" or "ignorantia juris non excusat."



But a language of intimidation doesn't work if people don't recognize it. And Latin has even lost that function in modern times. These days, if you spoke Latin to an auditorium full of people, and they didn't understand you, they would just assume you were an economist. You could go on MTV and speak in Latin all the live-long day, and not a single member of the audience would feel any intimidation whatsoever. If you printed a whole issue of *Wired* magazine in Latin, none of the readers would discern any difference from what they normally see in its pages and would feel no more intimidation than they now do when they read the magazine, although reading it might make them a little more tired.

At one time, you could intimidate the sturdiest of young men by saying "semper fidelis." But now, bullying a young man seems to require pinning a metal insignia to his chest and

striking it with your fist until he gets a bloodstain on his tee shirt. I think the young men probably liked it better in Latin. Human beings have largely lost faith in subtle intimidation, id est (which is Latin for "i.e."), intimidation that doesn't draw blood.

Intimidation was Latin's last important use, and it is plain that the language will disappear as the number of people who can't be intimidated by it grows. Eventually, someone is even going to have to translate the stuff in the Great Seal on the back of the dollar bills the human beings trade with each other and roll into little tubes for snorting drugs. Once that happens, the drug users will have nothing to puzzle over but the strange pyramid with the eye floating over it, although I suspect for users of some drugs, this is less a matter of puzzlement than one of inspiration.

Latin is being replaced as the language of intimidation by a more recent dead language: MS-DOS. Most human beings, when spoken to in MS-DOS, react in the same way that a previous generation reacted to Latin. They smile and nod and act like they understand, even as they are consumed with envy and shame.

It's sad to see MS-DOS take over this role from Latin, because Latin is so much more expressive. I have tried to translate "caeteris paribus" into MS-DOS, for example, and the closest I can get is "AUTO-EXEC.BAT." Latin may sound like nonsense, but MS-DOS really is. WIN.INI REG.DAT CONFIG.SYS. See what I mean? It doesn't draw blood, but it's still pretty painful.

Latin has been dead for a thousand years, but it produced some felicitous expressions that are now part of many "living" human languages. I can't tell you how many times a day I hear myself saying "mea culpa." And I believe "litterae scriptae manent" and "noli me tangere" are among the most useful phrases ever devised by humanity. I can't find equivalents for any these phrases in the MS-DOS manual.

And when I try to translate "Humanum est errare," the best I can come up with is "ABORT, RETRY OR FAIL?" I always choose the last one, but then I am pretty easily intimidated. □

A Christmas Santa Wouldn't Plan

Welcome to one of our rare theme issues. Half of the stories in this issue involve Christmas, though they don't treat the holiday the way most people would.

"Alone Again in Dweebland," by Patricia Anthony, is about a teenager who is stuck in the most amazing circumstances and finds them boring. Anthony, author of the novels

Anthony is now teaching writing at Southern Methodist University. The usually self-deprecating Texan is unabashedly proud of her latest novel, *God's Fires* (Ace Books) and short story collection *Eating Memories* (Old Earth Books). She says the book, set in Portugal during the Inquisition, involves aliens, but is actually a book about religious faith.

painted a depiction of a battle between an American airship and a German U-boat off the Florida Keys during the war. That painting will be appearing in the *Naval Aviation News*.

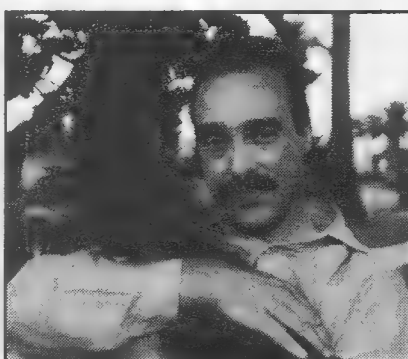
Now he is working on a painting of an encounter between a Navy blimp from South Weymouth, Massachusetts, and a German U-



Karl Schroeder

Cold Allies and *Conscience of the Beagle*, got her start in *Aboriginal* and is now a rising star in the genre. This story is the result of the *Dallas Morning News* asking her and several other prominent local authors to write a Christmas story. Her fans will see that it shares the setting of her novel *Happy Policeman*.

Pat tells me director James Cameron bought the rights to her political SF thriller *Brother Termite* and hired John Sayles to do the screenplay. With such stellar Hollywood names involved, that should be quite a movie.



Joshua Mertz

She says her editor and friends who have read it have all ended up sobbing. Anthony tells me it's the best thing she has done to date. "Read it, you will never forget it," she says. *God's Fires* should be in bookstores by the end of March.

"Alone Again in Dweebland" is illustrated by Cortney Skinner. Last time I spoke to him, he was researching Amazons for a painting. This time the history buff told me about blimps protecting U.S. ship convoys in World War II, and said the importance of blimps to the war effort is slowly emerging. Cortney



Kristine Kathryn Rusch

boat off Cape Cod during the war. He has the detailed log of the airship commander to go by, and the findings of a diver who has discovered the U-boat's ocean grave.

Karl Schroeder serves up good old wham-bang space adventure in "The Engine of Recall." Schroeder's fiction has appeared in *Figment* magazine and *Tesseracts*, an anthology of the best Canadian SF. His 1992 story, "The Toy Mill," written with David Nickle, won Canada's Aurora award for best short work in

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Jon Foster



Jael



Lubov



Sean Williams

English. He lives in Toronto where he devotes some of his time to teaching SF writing.

"The Engine of Recall" is illustrated by Jon Foster, who loved the hero and the imagery of the story. Jon has been doing steady work of the Middle Earth variety for Iron Crown Enterprises gaming cards and becoming more absorbed with painting via computer. He said it was "weird at first" hand painting on a horizontal surface and seeing it appear on a computer screen, but now he likes the different perspective it is giving him.

The human love/hate relationship with cats is put to the test in "Cat Got Your Tongue," by Joshua Mertz. This is Mertz's first professional fiction sale. He has completed a novel and several other short stories as well. "Mad Man" Mertz lives in LA, has a degree in motion picture/television production from USC, and works the teleprompter on a major tabloid news show. He listed "riding five different ferris wheels in one day" as one of the interesting things he's done lately.

"Cat Got Your Tongue" is illustrated by Jael, who is planning to drive by motorcycle to the WorldCon in San Antonio in late August. Her several classes in illustration for teenagers and adults are full, which means she is "tired but happy" these days. And she says she is hiding our last issue (the one where I mention her tattoos) from her grandchildren.



Patricia Anthony

A woman carried away by her feelings risks the trap of a time machine in "Loop," by Kristine Kathryn Rusch. Rusch's memorably moving tales are past *Aboriginal* standouts: "Story Child" (Sept/Oct '90), "Looking for Miriam" (Jan/Feb '89), "Solo for Concert Grand" (Jan/Feb '88), and "Sing" (Feb/March '87). Her novels include *The Fey: The Sacrifice* and *The Changeling*, the second book in the Fey series (Bantam Spectra). For many years she edited *The Magazine of Fantasy & Science Fiction*. She is married to former SF editor Dean Wesley Smith.

"Loop" is edited by fantasy artist and *Aboriginal* newcomer Lubov.

Born in Leningrad, Lubov studied at the Nevsky School of Art. Seeking cultural and political freedom, she moved to the U.S. in 1980. Three years later she was accepted at the School of the Art Institute of Chicago with a full four-year scholarship. Since graduating from the Art Institute, she has won awards for her work in various art exhibitions.

A December snowfall is unexpected and sinister in "White Christmas," by Sean Williams. The Australian Williams is the author of "Light Bodies Falling" in *Aboriginal's* Winter '92 issue. When I spoke to him he had just learned his first solo novel, *Metal Fatigue*, (HarperCollins Australia) had won Australia's Aurealis Award for 1996. He is working on a second novel and trying to get his first one published in the U.S.

"White Christmas" is illustrated by Cortney Skinner.

The cover illustration by artist David Deitrick, inspired by the work of Hal Clement, is the subject of the guest column by Charlene Brusso.

Deitrick is working on another dimensional piece for a future *Aboriginal* and says he is doing more of that and less flat work lately. He is teaching art history and industrial design at a local college, and he and artist wife Lori Deitrick "like everyone else are doing (game) cards." Lori is also into portraiture these days. Son Conner just became an Eagle Scout, and graduated high school, son Sean is working toward Eagle Scout and the Deitricks now have an adopted daughter named Meghan.

British colonial imperialism leaves its scars on yet another culture in "Lasuta," by Nigel Brown.



Nigel Brown

This is Brown's first professional sale. Another of his stories has been accepted by the British semiprozine *FarPoint*. Brown is an optometrist with his own business in England. And at the time he filled out his rap-sheet, his pet peeve was that *Star Trek: the Next Generation* wasn't being broadcast on British network TV.

"Lasuta" is illustrated by Carol Heyer. Her latest book for Ideals Publishing, *Sleeping Beauty*, sold out this holiday season. Ideals now markets Carol's children's books as the Heyer Collection, complete with brochure. Her next book for them will be *Black Beauty*. She is also doing a children's book on bridal customs around the world for Walker and Company, and CD covers for Roaring Mouse.

Charlene Brusso, the author of the feature on David's piece and Hal; Clement, was the author of "The Salute," in our Spring 1996 issue. She got started writing professionally after attending a summer writers' program at a local college and now tutors young writers in her spare time.

Morgan Hua's story "Flashed Shadows," which appeared in the Fall 1996 issue, has won a second-place award in the Best of Soft SF Contest. Way to go! □



David Deitrick w/clan

Alone Again in Dweebland

By Patricia Anthony

Art by Cortney Skinner

You'd think I'd get used to it, right? The geeks at school go, "Get a life." Or, "Oh, wa-a-a." I don't know why it doesn't get any easier, OK? I mean, it's more than wanting to hang out at the mall or at Blockbuster. I always had the hots for Julia Roberts. I wonder if she's still alive. If any of them are.

Sometimes I start thinking about movies and television. Malls and Chinese restaurants. Julia Roberts and Mom and Dad. That's when I get on my bike, no matter what time it is, and run out to the Line — it's not like Gran's gonna freak and put my picture on a milk carton, you know? — and that's when I start digging in the dirt like a nut case, sort of like Jack Nicholson in *The Shining* knocking on that bathroom door.

He-e-e-ere's Kevin!

Holidays are the worst. You're going along OK, maybe forgetting that cool in Dweeb City is a big initial belt buckle and a Garth Brooks hat. Maybe you're even getting used to Gran and her arts-and-crafts bean pictures. And he-e-e-ere's Christmas! knocking down your door with an ax.

So three weeks before my second Christmas marooned in Geekville — and, not that I'm counting, but also two years and nine months since the start of the granny visit from hell — here I am, pulling up grass and dirt in the dark. Right. Like I could really dig my way out. Then I realize a Torku's sitting there, watching me totally lose it.

So I start in on the Torku, even though Gran says that since they feed us, we ought to try to be nice. So what? Who cares that they give free Hamburger Helper to the local yokel grocery, the kind of place where they stock Chun King in gourmet?

Anyway, Mr. Personality sits like a fat freckled rock while I tell him how *real* aliens beam around instead of driving geeky UPS vans. They bust out of your chest. They eat dogs. They do antigrav stuff to your bike. I ask where *he* went to alien school. And then I tell him *real* aliens wouldn't put a Line around some snoozer Texas town so they could save blue jeans and kicker music and the 4-Hicks Club. They'd put a Line up around the world and save

everybody. Everybody. That's what a real alien would do. And he goes, "Why do you think something bad happened?"

Sometimes you gotta wonder how they ever made it across space.

I go, "Look, this town? We're the only survivors. Maybe you guys dropped bombs on the other people, or maybe it wasn't your fault, and there was some weird disease that killed everybody else. All I know is, we're in a homeboy zoo. But something really bad had to happen, because if Dad was alive, he would've come got me out."

Man, oh, man. It's pretty cold out there by the Line at one in the morning. I start thinking about Dad and about how Christmases used to be, with six-foot-tall fir trees, and pumpkin pies, and Santa Claus cookies, and I remember Gran saying, "Not so much fuss this year," and all of a sudden I'm boohooing.

"You have not seen what has happened to the ones behind the Line. How do you know that what has happened is bad?" the Torku goes.

"I don't!" And — it's weird, OK? — but these words start coming out of my mouth and I didn't even know I was gonna say them, or how important they'd be. What I say is: "And it's the not knowing that scares me."

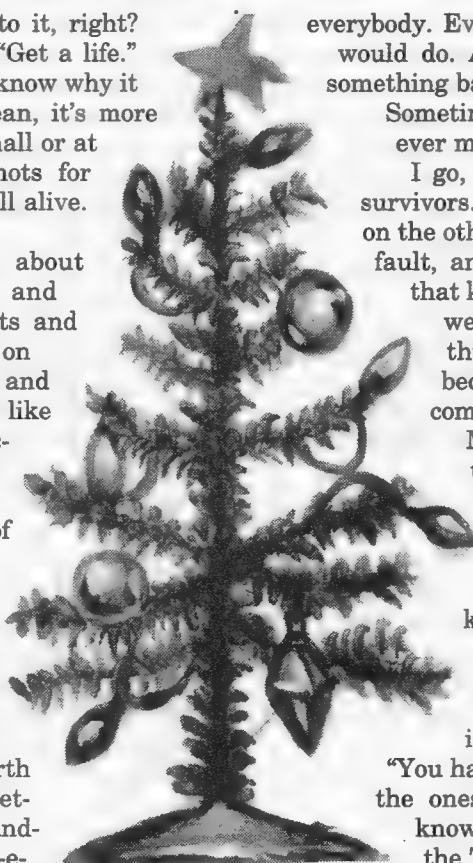
So this dork Torku goes, "Well." Just like that. Then he tells me I have a very novel way of looking at things, and would I like a ride back to town? Like the thrill of my life would be riding in his big-deal UPS van.

No way, I tell him. He leaves. There I am, alone again in Dweebland.

So a week later Gran puts up the tree, the fake dollar-ninety-eight kind that sits on top of a table. She goes for broke — puts on all six lights and all three ornaments. Then she sets out some presents and some potpourri that's supposed to smell like pine. The-e-e-ere's Christmas!

The next Saturday when she goes to macramé or candle-making or whatever the Geritol set's into, I stay home and — get this — make cookies.

Anyway, here I am, up to the elbows in flour, *Joy*



of *Cooking* propped open — a cookie-making maniac — and the doorbell rings. When I open the front door, I see old Dorku's come to visit. He tells me he's been thinking about what I'd said.

I have to invite him in, otherwise he'd spend the day on the porch, a mud statue. I take him to the kitchen. He plops as much of that speckled butt as he can fit into one of Gran's rattan chairs, and he goes, "What is behind the oven door?"

I tell him I'm making cookies, that my mom taught me how. And while I'm explaining that cookies are a really important part of Christmas, and how I used to help Mom make pumpkin pies and cornbread dressing, I look out the window and see the top of the Line over the trees. Yesterday it was red and white like peppermint candy. Today it's kind of a faded tan with little pink flowers, and I remember that Mom had a blouse with tiny flowers like that.

It happens so fast that I don't see it coming. Like smashing your thumb with a hammer — so quick you don't even cry. Only this pain's down in my chest, and it hurts so bad I can't breathe.

And old Dorku goes, "What is behind the oven door?"

I kinda gasp out, "Oh, man, gimme a break. It's cookies!"

He goes, "How do you know that?"

I tell him because I put them there.

So he goes, "Then you have missed the point," and before I can figure out what he means, he waves toward the cupboard and says, "What is in there?"

I tell him cans and spaghetti and stuff.

"It is a kitty."

Wait. Wait a minute. Let's think about this.

I mean, he came all the way from another planet. Got to have *something* going for him, right? So I go to the cupboard and peek in. Tomato paste. Canned green beans.

He goes, "You have ruined it by looking. Just before you opened the door, there was a striped kitty."

I close the cupboard. "Get real. You couldn't see in. How do you know?"

"Because I put the kitty in there. Now I have put it back."

So, like a doofus, I look inside. If there's a cat, it's doing this killer imitation of Campbell's soup.

And Dorku goes, "How can I be certain what is in the oven, even if I remember putting something inside? And if no knowledge is absolute, then why should I be afraid of what is in the cupboard? This is why the Line exists: the *not* seeing is the miracle."

What he says weirds me out. I'm standing there, right? And I nearly get it. Like, I'm staring into the cupboard, and I can smell that stupid potpourri, I can smell the cookies baking, and I know if I looked around I'd see that cheap tree and all the dirty pans I'm gonna have to wash, but my nose is telling me it's Christmas. Aw, man. It's Christmas. I can feel someone behind me, and for a minute, just a minute,

it's Mom.

I hold my breath and turn around real slow. The Torku's prying himself out of the chair. I ask him if he wants some cookies to take with him, you know, for the rest of the guys. He says no. And just like Mom always taught me, I walk him to the door.

On the way, we pass the tree. Under it is this rectangular box that's gotta be clothes. I already shook it, so I know it's a shirt. And if it came from Gran, it's gotta be something that's basic fashion for the Grand Ole Opry.

But still, it's one of the all-time great-looking gifts, wrapped in the Christmas paper they make for guys — gold foil with brown and red and dark green leaves. It looks like something you'd go duck hunting with. I hand the box to old Dorku. "Merry Christmas."

He freaks, sort of freezes in place, like nobody's ever given him a present before.

Is this great, or what? Man. The potpourri's putting out pine scent like crazy, and the cookies I baked smell like heaven. No doubt about it. Christmas.

I go, "Hey, get into the season, OK? This is part of the cookie and pine tree thing I was telling you about. Once a year, we pick out something special, wrap it in foil paper, and give it to somebody. This one's yours."

He nods, real serious. I watch him waddle down the steps, carrying that box.

See? What's cool is, he'll never open it. He'll never know all it is is a dorky Western shirt. He'll never realize that the paper it's wrapped in is better than what's inside. I want to call after him, "It's a tabby cat!" but I don't.

If his Dorku friends ask what's in it, he'll say, "A Rangers' coffee mug" or "Addison Airport." That's what's so totally cool.

It's chilly on the porch, so cold my breath comes out in a fog. I go back inside. The house is warm, the way it feels in winter — not like April, you know? But warm like someone just put their arms around you. When the timer dings, I walk into the kitchen and take the last batch of cookies from the oven.

There's lots of trees in Dweebland, that's the only neat thing here. If I stand at the window, I can see a whole forest. The leaves already fell, so it's gray except for the cedar. Behind the house is a thirty-foot wall the color of Mom's blouse.

Here's the thing: If you don't open the present, anything can be inside. A cat. Fair Park. I mean, is that what the Line's all about?

One thing I'm sure of: for the first time I can picture Mom alive. It's a week till Christmas there, too, and she's feeling kinda sad. But it's all right. I know the house smells of that six-foot-tall fir, and everything's almost like it should be. Like it was. It's four o'clock on a Saturday afternoon, and it's cloudy. The air's hazy and cold and blue, but I know the kitchen's warm and bright. And sure as I'm standing here, I know she's baking cookies. □



White Christmas

By Sean Williams

Art by Cortney Skinner

It was as he remembered it, except for the snow. Coming around the final bend in the winding road, with the bare shoulder of the mountain on his right and a yawning gulf on his left, Stewart slowed as the shack finally came into view. The tiny building was crowded by half-hearted scrub, through which a narrow driveway led to a dark veranda. He swung the Toyota as close to the front door as he could and killed the engine.

The shack was empty; that was obvious even from the outside, and expected. Owned by a property developer from Sydney, it was abandoned for all but six weeks of the year, when it served as a retreat for the businessman and his wife. Only on the odd occasion was it rented out to others with similar needs. With no phone, fax, or modem, television, radio, or satellite dish, its isolation was complete. The nearest town was a half-hour drive back down the hill — too far to be a temptation, but near enough for emergencies. The shack was, as the owner liked to say, perfect for philosophers, writers, and honeymooners.

Stewart Danby didn't smile at the last. He had come alone, this time. Jacqui was back in Adelaide ... in what was *left* of Adelaide, rather ... and he was trying not to think about that.

Leaning forward over the steering wheel, fatigue making his hands shake, he studied the ground around the Toyota. The sun was setting, filling the valley with gold and blood, deepening slowly to royal purple. Drifts of snow lay like scraps of cloth in the lee of the building and in the shallow troughs of the rising hillside, but otherwise the area seemed clear. He took a deep breath and opened the door, leaving the keys in the ignition.

The shack's single door was locked, but he managed to prise open a loose rear window. The air inside was stuffy and hot; the coolness of the mid-summer twilight had yet to penetrate the thick stone walls. Opening the front door from within, he went back outside to unload the car.

Three boxes of canned food he had stolen from a supermarket were followed by a sleeping bag; a jerrycan of kerosene and two bottles of butane gas; a set of scuba gear with a half-dozen extra bottles, also stolen; a box of gaffer tape; two cartons of cigarettes; coffee, sugar, and powdered milk; and five bottles of Johnnie Walker Black Label, one of which was already open.

The sun had set by the time the Toyota was empty. The air of the hills stank of rotten eggs, an odour he had gradually become used to during the drive. After his exposure to the relatively untainted air inside the shack, however, it caught anew in the back of his throat. He pulled at the scotch, wincing; the fire of the spirit wasn't sufficient to overpower the stench, but it helped.

He stood for a moment under the pale, starry bowl, head tipped back, the scotch in one hand, a cigarette in the other. The deep valley below was in darkness. Above the opposite hills, the comet was rising. A feather of glowing smoke which cast no shadow, it smudged the southwestern sky like the fingerprint of a grandmaster.

He shivered, although it wasn't cold, and lowered his eyes.

Snow, sparkling faintly in the comet-light, had already settled upon the pitted roof and bonnet of the car. Dropping the gearstick into neutral and disengaging the handbrake, he gave the bumper-bar a push with his foot and stepped clear. The car rolled backwards down the drive, across the winding road that had brought him to the shack, then disappeared suddenly over the lip of the chasm. A series of tinkling smashes accompanied its descent into darkness, followed by silence as thick as bedrock. There was no explosion.

He swigged from the bottle and went inside.

The shack was furnished in old Seventies pine, stained yellow by years and nicotine: two chairs, a sofa, and a rickety table. Amateurish paintings in cheap frames cluttered the walls. The carpet was a mottled burgundy, frayed at the edges and sorely in need of replacement. Sagging bookcases lined one wall, full of cheap paperbacks, mostly science fiction. The opposite wall was one long window, blind behind drapes. He tugged them open. The view was black, but he knew that it would be spectacular by daylight. The comet winked balefully at him, and he shut the curtains again.

Lighting the stove, he filled the kettle with rainwater and set it to boil. While he waited, he unpacked the tins of food. Apart from a chipped set of mismatched cutlery, the cupboards contained nothing but dust and fluff. The bench-tops were spotted with dead flies. He made a half-hearted attempt to clean away the evidence of emptiness, but gave up before he had finished. There was no point.

The kettle screeched plaintively, like a baby, and he poured the coffee. Stirring the various powders into a muddy solution, he breathed the cleansing steam into his nostrils. The combination of dust and hydrogen sulphide was giving his sinuses hell, but there wasn't much he could do about it. With the mug in one hand, he explored the rest of the house.

The bathroom was a small cubicle next to the kitchen. There was a primitive shower, with an instant gas heater powered by roof-mounted solar panels, and



a tiny sink; the chemical toilet was a small plastic box in one corner, lid shut. Mould was seeping down the walls like the shadows of stalactites. There was a tiny mirror on one wall, blotched white with soap. Exactly as he remembered it.

The single bedroom was bare, with a coffin-like cupboard and a stripped double bed. The mattress was stained brown and in the final stages of internal collapse. Again, the same as it had been. He recalled the time, five years earlier, when he and Jacqui had ...

No. He went back into the main room and found the half-empty bottle of scotch. He preferred the cold blankness of an automaton to the grief and pain that waited to claim him. He could feel it building, growing like a bubble deep in his throat. When it burst, as it surely would, he didn't think he would be able to survive. The shock was fading, so he had to feed the anaesthesia some other way. It was either that, or leave.

And he couldn't leave. No matter what perverse internal logic had led him here, he had to go with it. There was nowhere else to go.

In activity there was relief. He opened two tins and cooked himself a simple casserole of meat and vegetables. He fussed with the burner, with the plates, took his time eating and washing the few dishes. The bottle emptied fast, and he opened another. The night deepened. He could feel the comet crossing the heavens above him, invisible through the ceiling, but still there. A simple clock to measure the thickening of the night.

It became cold at last — a deep, desert cold. There was a pot-bellied stove in one corner of the main room, but he hadn't thought to bring wood. Lighting the kerosene heater, he chain-smoked, watched the purple flame flickering, and finished the second bottle.

When the sun eventually rose, it was pallid and less intense than it had been the previous day. The snow had tightened its grip on the valley overnight and reflected the myriad shades of dawn back at the cloudless sky. The view from the shack's perspective would have been breath taking, had he only been awake to see it.

Inside his mind, more memory than dream, another sun rose.

He was driving the Toyota back from Port Germaine, where he had stayed the weekend with a cousin. He almost hadn't gone at all, but Jacqui had talked him into it.

"Just go, dammit. You need the break."

"But I've got work to do."

"Work? It's *Christmas*, Stew." She put her hands on her hips, resembling more than ever a cross, brown bear. "No buts. You missed it last time and complained for a month. I don't want to listen to your whining again."

"I don't remember any whining."

"It was pathetic." A grin surfaced through the mock-anger. "God knows I can't see the attraction in some cosmic ball of fluff, but I understand what it means to you. You've been up in the clouds for days now, thinking about it, so just get the hell out of here and take a look, okay?" She took his chin in one hand and kissed him on the lips: the quick peck that said she

meant business. "Okay?"

She had been talking about the comet, of course — Ronson's Comet, which had reached perigee the previous autumn. In the city, the spectral visitor had been pale and foreshortened, a dusty smudge almost invisible through the wash of streetlights. Hamish, his cousin, had waxed lyrical about its beauty from the country, but Stewart had been too busy tying up a publishing deal to spare the time to travel to Port Germaine, where Hamish lived.

And Jacqui had been right: he had regretted missing it. If perigee had come a single week later, he might have been able to arrange something, but it hadn't. When it had vanished behind the sun, he had cursed himself anyway for not taking the opportunity that Hamish had presented. He tried to resign himself to the fact that he had missed it, but with only partial success.

Then, after perihelion, the comet's orbit shifted — as a result of violent gas discharges from its unimaginable surface. The second perigee, scheduled for the middle of December, was even closer than the first. Earth, and Stewart Danby, had been given a second chance.

"Okay, okay." He capitulated gracelessly, feigning reluctance. She didn't want to come, he knew that, but he didn't want to seem too eager to go without her, either. Although he would miss her, her lack of enthusiasm would only dampen the experience.

He left on the Friday afternoon and arrived at Port Germaine in time for a spectacular sunset. The small fishing town was lively with weekend tourists who, like him, had fled the perpetual blindness of the city's light for the transparent skies of the country. The night was hot and clear, perfect for idle star gazing. The local council had arranged a blackout, to aid the amateur observers.

Sharing a six-pack on Hamish's back veranda, he watched the comet rise, knowing it would be a sight he would never forget.

Away from the city, its tail stretched across half the sky, nebulous but clear. Through binoculars, it looked like faintly glowing smoke, backlit by stars. He thought he detected colours in its feathery wake, but couldn't be certain.

"I doubt it," said Hamish, who had done a lot of reading in the last few weeks and was assertively confident with his new knowledge. "Takes a spectrometer to pick out the elements. The naked eye just sees white."

There followed a discussion of the comet's origins, little of which was new to Stewart. It had drifted into the Solar System from deep space, not from the Oort cloud. Unlike Halley, it was a new addition to the family of planets, but only a temporary one. After perigee, it would swing out of the system, never to return.

"Show you something interesting," said Hamish, producing a magazine. Holding a lit cigarette lighter, he illuminated one glossy page. On it was printed a simple picture of the comet's altered orbit. "What does this look like?"

"A fish," said Stewart, and Hamish nodded. The sun was the fish's eye, the Earth a tiny dot in its tail.

"An *Ichthus*, more to the point." Hamish extinguished the lighter with a wry grin. "Glad I'm not a Christian."

It took Stewart a moment to remember the word, and to realise what his cousin was suggesting. Comets were traditionally signs of doom and destruction; coming so close to the end of the millennium, their prophetic powers were augmented. That Ronson's Comet was further coupled with a common symbol of the Christian saviour augured the Apocalypse, Judgement Day.

"Maybe you should become one," he joked. "A Christian, I mean. Before it's too late."

Hamish snorted in the sylvan darkness. "Crap."

"No, really, doesn't it seem a little strange? It did change course, after all." The question begged to be asked. "Maybe we didn't get the message first time around."

"Coincidence, Stew. That's all."

Stewart smiled in the star-spattered darkness. Hamish was right, of course, but he wondered how many prophets of doom would profit from the comet's timely appearance. "Five to one says you're wrong."

"You're on, sucker."

The weekend passed quickly. Perigee had been the previous Wednesday, but the comet showed no immediate signs of decreasing in magnitude. Tiny sparks seemed to twinkle in the comet's tail, glinting, insubstantial, and short-lived. Boulders of dislodged ice, asserted Hamish, although he admitted that he had neither seen the phenomenon before nor read of it. Stewart wasn't convinced, but kept his opinion to himself; to have witnessed the phenomenon alone was enough. He didn't need a knowledge of ballistics to enjoy fireworks.

Reluctant to leave, he delayed his departure as long as possible. The comet was hypnotic, beguiling, a drop of dye in the clear waters of mundane, modern life. He eventually drove out of Port Germaine at four o'clock the Monday morning, knowing he would regret the lack of sleep at work that day but glad that he had made the effort to be there, to stay those extra few hours.

It was at this point that the dream began.

Halfway to Adelaide, with the comet low ahead of him and the sun rising on his left, he stopped to take a leak by the side of the highway. A fatigue hangover had begun somewhere behind his eyeballs, and he relished the chance to close and rest his eyes. The dawn, with all its crispness and crystal-clarity, was simply too much.

Then a sudden and strong gust of wind made him squint at the lightening sky. Clouds were rolling in from the southeast with astonishing speed. Pure white but as large as cumulonimbus, they bulked over the horizon, growing larger as he watched. The wind picked up sharply, and he headed back to the Toyota for shelter. At the rate the bulging clouds were moving, the storm would be over him in a moment. There was electricity in the air, a powerful aura of disaster.

He started the car and pulled back onto the highway, leaving the lights on. The shadow of the clouds covered him, bringing a semblance of night back with it. The wind became more insistent, tugging the Toyota to one side, although as yet there was no rain.

His radio, tuned to a country station, crackled in
White Christmas

mid-chorus and died. The shadow deepened; behind him, the last segment of pale blue sky vanished.

He stared in absolute astonishment as, maybe for the first time ever in that part of Australia, it began to snow.

He awoke gasping for breath, momentarily disoriented. Then he remembered where he was, and what he was doing there. He was at Barnard's shack in the Flinders Ranges, and he had come there to ... what? Forget? Hide?

Die?

Staggering out of the chair, wincing at the light that stabbed through the gaps between the curtains, he found the scuba gear and twisted a knob. High-pressure air hissed into his open mouth. He lay back on the floor of the shack and sucked in the sweet coolness.

The muzziness in his head and fingertips gradually faded. He switched off the valve and removed the rubber mask. The air in the shack was thick and pungent; more than ever the stench of rotten eggs filled his nostrils. Taking it slowly, breathing heavily through his open mouth, he rummaged in a box for the gaffer tape.

Then, slowly but surely, he sealed every entrance to the shack: window frames, air-vents, cracks under doors. Everything.

When he had finished, he collapsed with his face pressed against a dirty windowpane, chest rising and falling in spasms. Outside, the atmosphere seemed unnaturally dense and yellowish. The snow-cover was thicker than it had been the night before, although the sky was still cloudless and the wind seemed free of the particles. It piled in drifts against the walls of the shack, where the previous day it had been clear, and he was reminded of the Red Weed from H.G. Wells's *War of the Worlds*. The snow had turned the valley into an alien landscape: moonlike, with gentle curves and featureless bulges in place of more earthly scenery.

The bubble in his throat was growing, making it even more difficult to breathe. With exaggerated and clumsy fingers, he turned on the scuba gear again, flooding the room with fresh air.

It was three days since the first snowfall, when he had gaped incredulously at the white powder that batted in flurries at the Toyota. The forecast the previous night had said nothing about storms, let alone snow. It was a warm summer night; he couldn't imagine where such a mass of super-cold air had come from, or how the snow had survived the fall to the ground without melting into rain. The only places in Australia where conditions allowed the freezing of water in any form, as far as he knew, were the Snowy Mountains and the south of Tasmania, both during winter. Not South Australia, driest state in the world, in the middle of summer

Ahead, the road had vanished under a thin carpet of white, and he slowed slightly. There seemed to be no slippage, however; his wheels gripped the road surface as well as they ever had, which seemed strange. Surely melting snow was more treacherous than water? He would have assumed so. But the stuff wasn't even sticking to the windscreen, contrary to expectations.

The last stop before entering the northern edge of the city was Port Wakefield. He pulled into a service station, partly to refuel, mostly to assess the situation,

but the attendant knew as little as he. Snow was falling, impossible snow, and the radio frequencies were still swamped by interference. There was no chance of an updated weather report until the storm cleared.

It seemed safe to assume that the freak weather had hit the city, and he wondered whether Jacqui could shed some light on it. Having spent some years in Europe before moving to Australia, her knowledge of snowstorms was bound to be greater than his, who had never seen one in his life. He didn't even know if it was safe to drive during it, or whether tire chains were required. Traffic around Christmas was heavy, and he didn't want to be caught in a pile-up.

But when he tried to ring Jacqui from a public phone, the lines were dead. The last time he had spoken to her had been from Hamish's the previous night, and nothing had been amiss. A line must have come down since then, he assumed, probably as a result of the storm.

None the wiser, Stewart got back into the car and continued on his way. The snow stopped falling not long after, but the thick, fairy-floss clouds remained and the radio stayed dead. The ground cover was thicker the closer he came to the city; even the tyre-tracks of the cars preceding him seemed faint. His speed slowly decreased until he was barely above sixty kph.

Just outside the first main intersection, the snow became too thick to pass. A number of cars blocked the highway, making further progress impossible, had he felt the urge to try anyway. Pulling to a halt, he walked to join the others who had gathered on the roadside, scuffing the snow incredulously. It crunched faintly beneath his feet, like sand.

"This is really fucked," said one woman, a bedraggled mother of four children who squealed and squawked from a nearby station wagon. "My mother's expecting us this morning, and we're already an hour late."

"Can't get past it," said a man in his late forties, with a biker's beard and dirty leathers. He radiated an aura of patient, if faintly puzzled, pragmatism, and Stewart found his attitude calming. The biker gestured at the bank of snow in their path. "I've just come from further on. The traffic's bogged in solid. Take a tractor to shift it."

"Maybe it levels out. We might be able to force our way —"

"Lady, it was up to my waist when I turned back, and getting deeper. Unless you've got a bulldozer handy, I can't see how you're gonna get through it."

"What the hell are we supposed to do, then?"

"Try another way in, I guess." The old biker scratched at his beard. "Come down through the hills maybe."

The woman was not happy. She had obviously been driving for some hours and didn't relish the thought of spending any more time with the kids on her back. "Fuck it. I'm going to wait. The council will get their act together soon enough."

The biker smiled wryly. "Maybe, but I don't think snowploughs are all that common 'round here."

"Any idea where it came from?" Stewart asked.

"The greenhouse effect," said the woman. "It fell through a hole in the ozone layer."

The biker looked unconvinced. "Beats me, to be honest. It hit right out of the blue. No warning, no nothing." He lashed out with a leather riding-boot, sending a snowdrift scattering. "But that's not what really worries me."

"What, then?"

"Touch it, if you haven't already, and you'll see what I mean."

Stewart hesitated, then stooped to the ground and plunged his hand into the drift at his feet. To his surprise, the snow wasn't cold; not even cool. It was as warm as the earth it covered. It felt gritty on his palm and fingertips; the resemblance to sand became even stronger.

"It's not cold," said the biker, "it's not melting, and I doubt you could build a snowman out of it. If it's *really* snow, I'll eat my leathers."

Standing up and glancing around, Stewart tried to make sense of the phenomenon. Snow lay everywhere his eye could see, a thick blanket of white, definitely becoming deeper in the direction towards Adelaide. It hung from trees like scraps of torn sheets, too unusual to be truly beautiful. If it wasn't snow, he thought, it might have been ash. Had there been some sort of volcanic explosion in Adelaide's vicinity? As far as he knew there were no volcanos, active or dead, for many hundreds of kilometres, although the city did lie on top of a fault line

"I'm heading for the hills," said the biker, stamping off to his bike. "No point standing around here all day."

Stewart agreed and went back to the Toyota, leaving the mother to deal with her kids alone.

Two hours later, coming down the last leg of the Great Eastern Freeway, he passed the biker going back up. Recognising the car, the biker flagged him down.

"Don't bother. Blocked that way too. Worse, if anything."

"Shit." That explained why he had seen few cars coming either way, despite it being close to peak-hour. "Where now?"

"Me, I'm going back to the lookout. Might be able to see something from there."

Stewart followed the motorbike back up the freeway, to a concrete car-park hollowed out of the chest of the foothills. There, he produced the binoculars he had taken with him to study the comet and turned them on the landscape below.

Through the clouds, which hung low and heavy over the hills, he could see little. Handing the binoculars to the biker, he leaned forward over the concrete barrier, trying to pierce the cloud-cover by sheer force of will.

The clouds parted for an instant, allowing them an unobstructed view.

"Jesus Christ," whispered the biker, the knuckles holding the binoculars draining of blood.

"What? What can you see?"

Wordlessly, the biker shook his head and handed the binoculars back to him.

Stewart focussed the lenses and swept his amplified stare across the suburbs and streets of the city. White, everywhere, just white. No details. It looked as though

fog or heavy mist had covered the city, obscuring it from sight.

"Look at the city centre," suggested the biker.

Landmarks lay buried beneath the white pancake. He didn't realise he had found the city centre until he recognised the upraised silhouette of the State Bank building, the tallest in Adelaide. It too was shrouded in white, as though a cloth had been draped over it, but it didn't look as tall as it should have been. The buildings around it were similarly foreshortened, and some appeared to be missing altogether. He frowned; the snow couldn't be that thick, could it?

As he watched, puzzled, the State Bank building slumped and fell over, melting into the snow like a spear of ice cream under the hot sun.

"Oh my god," he breathed.

"The city's going under," said the biker. "It's burying it."

"But ..." Stewart lowered the binoculars, his hands shaking. "That's ..."

"I'm getting out of here. Something weird's going on, and I don't like it."

"The snow ... ?"

"It's *not* snow, I know that much." The biker sniffed and raised his nose to taste the wind. "Can you smell it? The air is turning."

Stewart found an edge to the air, like rotten eggs, blowing up from the foothills.

"My wife works in the city," he said, a cold feeling beginning to burn in his stomach.

"You got any kids?" asked the biker.

He shook his head.

"I've got three." A dirty hand flapped at the terrible whiteness. "Somewhere under *that*."

"You're not going to leave them?"

The biker worried his beard with one hand. "If they're okay, then they can look after themselves. If they're not, there's nothing I can do."

"We have to *try*, don't we?"

The biker looked uncomfortable for a moment. Then, without replying, he strode bow-legged back to the bike and kicked it into life. The roar of the engine leapt from the hills as the biker sped back to the highway.

Stewart stayed until the cloud-cover closed again, cutting off the view of the city. There was nothing new to be seen, apart from the gentle, silent collapse of the city centre; just an endless snowfield that stretched as far as the sea. No details, no signs of life.

His stomach gnawed at itself as he drove back down the freeway. The snow piled higher the deeper he went, until he rounded a corner and reached a solid wall of the stuff, with a handful of cars parked in front of it. The bike leaned on its stand amongst them, and Stewart was gratified to see it, although the biker himself was nowhere to be seen.

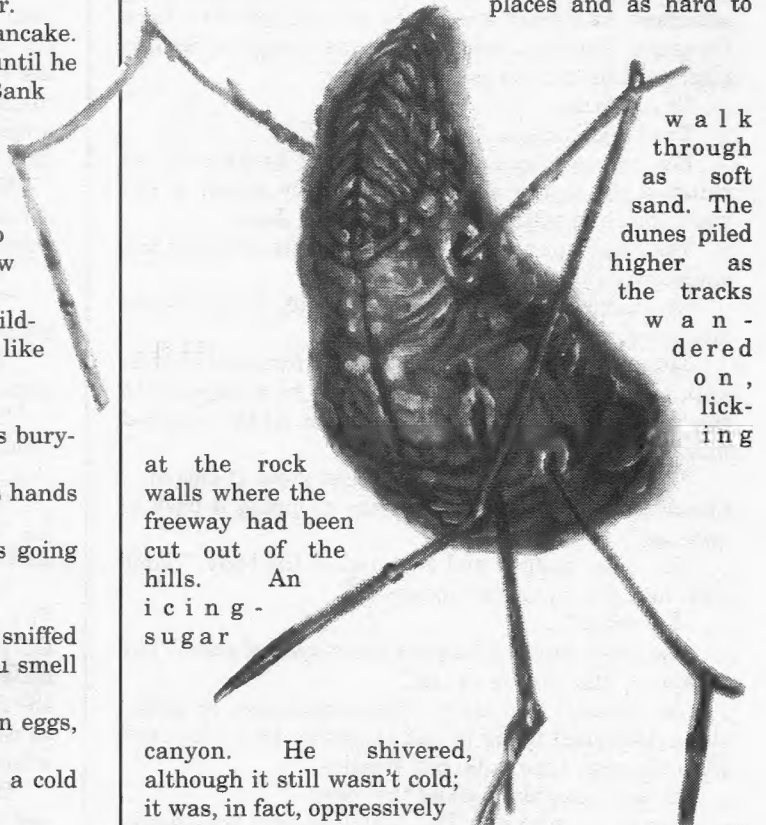
A clot of people had gathered near the blockage. Walking up to them, Stewart addressed the one who seemed to have elected himself leader.

"The biker. Where did he go?"

The short, balding man pointed over the snow-dune. "In there. With Gary."

Footprints led over the dune. Thanking the bald

man, he followed the double tracks. The snow was at least ten feet deep in places and as hard to



walk
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dunes piled
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canyon. He shivered, although it still wasn't cold; it was, in fact, oppressively hot. The smell of rotten eggs was strong in the still, muffled air.

He turned a bend and caught sight of the biker and the man called Gary. They were standing not much further on, looking at something on the ground between them. He called to them, and both glanced at him in surprise.

Gary looked like an accountant, tall with a pot-gut and thinning black hair. As Stewart approached, he realised that the man's face was as white as the snow around them.

"You don't want to see this," said the biker.

Stewart forced his way through and stared at what lay at their feet. At first, all he saw was a dash of red in the ubiquitous white, until the details fell into place.

It was the body of a woman, partly buried. That she was dead was unarguable. Her flayed face was twisted in an inhuman rictus, open-mouthed and lipless. Her clothes were gone, but there was no blood evident. The staring eyes were full of empty accusation.

Not far from the impromptu grave was a splash of vomit.

"There's a car up ahead," said Gary, still pale. "Abandoned."

"Someone dumped her here?" asked Stewart, forcing the words through the nausea rising in his own throat.

"We don't think so. She must have crawled from it, got buried, and suffocated. If I hadn't tripped over her, we never would've found her."

"But who ... ?" He gestured at the condition of the corpse, lost for words.

"Skinned her? Look closely."

Stewart reluctantly did so, although he would have preferred not to. The snow lay across her vivid flesh like ribbons, or ropes. More: it seemed to be digging in, somehow, as though she might yet struggle free from the grave. This impression alone was enough to disturb him, until he noticed something else.

"It ... it's moving!"

The biker nodded. "It's *eating* her."

His stomach spasmed. Staggering backwards, he clutched his mouth and simultaneously wiped at the snow that had settled on his skin. "Oh, Jesus ..."

The biker put a steadying hand on his shoulder and smiled without humour.

"It probably won't hurt you," he said. "Or us. We're still alive, you see."

Stewart swallowed his nausea and forced his hands still, cursing his foolishness. He had been exposed to the snow on several occasions and it hadn't harmed him. "But ... I don't understand."

"The car," said Gary, "was almost gone. It looked ... dissolved. Decayed. The snow was stripping it back to nothing."

The biker nodded and gestured at the body. "Same with her. She's just raw material."

"For what?"

The biker waved a hand at the canyon of snow. "For whatever this stuff really is."

"Machines," said Gary. "Nano-machines, or something. Designed to dig in and separate the useful stuff from the rest. Like ants, but smaller."

"Is that possible?" asked the biker.

"I can't see why not. The Japanese have been working on the technology for years."

"So you think the Japs are behind this?"

Gary hesitated. "No. I doubt it."

Stewart could feel panic rising through his confusion. Too many surprises in one morning were taking their toll. He allowed himself to be led away from the body, back up the freeway.

"The comet," he whispered, half to himself.

Gary nodded, unsurprised by the idea, as though he had already considered it. "Probably."

"Aliens?" The biker raised his eyebrows.

"Or something non-intelligent. This stuff could be a life-form, some sort of mindless bug."

"Do you think so?"

"No. It hit the city dead on. That suggests a purposeful intent."

"Maybe they home in on metal?"

"Maybe." Gary shrugged at the biker's question. "But if it is aliens, this could be just the beginning — phase one, if you like. Maybe they're going to build something next. Or they're getting the planet ready for colonisation."

The biker nodded slowly. "The air's starting to smell bad."

"Exactly. Depending on how much of this stuff there is, worldwide, it would be fairly easy to change the environment. And if the snow's self-replicating, then it'd be even easier. Once the bugs are loose, there'd be no stopping them."

"How long?" Stewart gasped.

Gary shrugged. "I don't know. I'm not a scientist."

"You'll have to ask the aliens," suggested the biker, "if they exist."

The trip back to the cars passed in solemn silence, each man harbouring private thoughts. The walls of the canyon loomed over them, higher than before. In the short time they had been studying the girl's gory corpse, the snow had indeed thickened. Stewart was aware that he wasn't the only one discomforted by the fact.

When they reached the last snow-dune, Gary turned to them and, as though he regretted his earlier words, said:

"Remember, it's only a theory. I could be wrong."

"Then why haven't we seen any planes?" asked the biker. "And why aren't the radios working?"

"I don't know. But I don't think we should start a panic over what might turn out to be nothing."

"Nothing?" The biker shook his head, and Stewart thought of the dead girl. "We've been invaded by *something*, haven't we? Surely we should try to fight back?"

"How? How do you fight *snow*?" Gary looked mournful. "Maybe it is the Japanese, after all. My wife always said that I read too much science fiction ..."

Stewart collapsed gratefully into the seat of the Toyota, his mind whirling. The idea of aliens invading the planet wouldn't leave him alone. It was too crazy to be true, and yet it made a horrible kind of sense: to hit the cities first, to use a widespread plague of machines to contaminate the environment, to hide in a comet, where no-one would ever think to look ...

It had swung past the Earth once, perhaps to survey the territory, then had changed course during perihelion. The whip of the sun's gravity had dragged it back for one more visit, to drop its deadly cargo into the atmosphere. Maybe just a handful of snow-particles at first, breeding, self-replicating in the upper altitudes, until enough existed to cover the major cities of the Earth. And then it had started falling: snowflakes, innocent and unexpected, *everywhere*, unstoppable.

It did make sense. And, even if the theory was wrong, the facts remained, indisputable. Adelaide was buried and crumbling beneath the snow. At the rate the girl's body had decayed, the city wouldn't last long.

He glanced at his watch; the storm had ended just four hours earlier. It seemed like a lifetime. His hands were shaking with delayed shock; a cold numbness was spreading through his mind, cutting off the part of him that wanted to scream. Through the growing fog, it became strangely easier to think and, although the terrible coldness of his thoughts appalled him, he knew that this was a defence mechanism: he needed to think rationally if he was going to survive.

If Jacqui was still alive, then there was nothing he could do to reach her. There was no way of telling whether the snow's aversion to living things was permanent or not; he didn't want to be eaten alive if it suddenly changed its mind. Better to assume that she was dead, that everyone in the city was dead. And, as the snow spread and grew, the neighbouring regions wouldn't be safe for long. His weekend of comet-spotting might have saved his life in the short term, but how long would it be before the snow spread to encompass neighbouring towns?

And how long before the entire world succumbed?

The biker had left by the time he reached a decision. With a pang of regret that he had never learned the man's name, he started the car and headed back up the freeway.

The last bottle of compressed air emptied with the fifth bottle of scotch, and he was down to his last cigarette. It was four days since the snow had fallen. The roof was starting to sag under the weight of the stuff that had settled upon it; white tendrils inched through the gaffer tape, worming imperceptibly across the worn carpet.

It was Christmas Day, and he had run out of anaesthetic.

As the bubble burst and grief poured in to fill the empty space in his chest, he realised that this was what he had been waiting for all along. That was why he had come back to Barnard's shack, where he and Jacqui had spent their first married week together. Not to forget or to hide, but to grieve. To say goodbye.

The telephone line from Port Germaine had been faint but clear, the last time he had spoken to Jacqui. He had been amazed by how much he had missed her, even though he'd only been gone two nights. Her voice had been a poor substitute for the real thing. Three days later, all he had was a memory of her voice. The woman he had loved was gone, along with Adelaide and the unnamed girl buried beneath the snow. The assumption had been easy to make, but the realisation of the fact had taken time.

Tears burned his eyes, but he didn't try to fight them anymore — if he had fought them at all. Maybe he had just been waiting for them to come. The pain made it easier to cut free from the world that had ended.

When the spasm of grief ebbed, half an hour had passed. The air was thickening again, curdling before his very eyes.

Rising from the chair, he drew back the curtains. The valley with its native scrub was gone. In its place was a world drained of colour. The snow had formed delicate spires and towers, upraised to greet the sun. The alien forest was still and lifeless, but he could sense a vitality stirring through it, as though the snow itself was alive.

The Earth wasn't dead, but *changed*. It no longer belonged to its previous owners. Already, he felt like a trespasser. An unwanted intruder, witnessing the birth of a new world. He wondered if he was the only one.

On the heels of this thought, there came a noise from the rear of the shack: a rattle of rocks, loud in the stillness of the valley. Turning his back to the view, he went to the kitchen window and peered out.

Something was moving down the hill. The creature looked at first like a giant spider, with legs over five metres long, crawling ponderously towards the cabin. As white as the snow it traversed, it moved with all the precision of a surgical instrument. Limbs swivelled and folded neatly to match niches and holds buried beneath the snow. There was no wasted movement, nor the slightest hesitation or inefficiency. He was unable to decide whether it was a machine or a living creature.

When it came to a halt not five metres away, the legs collapsed along its sides and it became a giant flea, two metres high. Stewart could see no eyes in the knobbed, ugly "face," but sensed that it was watching the shack intently, as though waiting for him to make a move.

"How long?" he had asked Gary, just days earlier, and the biker had replied:

"Ask the aliens."

If phase one — the snow — had already ended, then the creature in front of him was part of phase two. Probably not the aliens themselves, but motile drones programmed to scour the surface of the planet. Robots. The colonists themselves would come later, perhaps resurrected from frozen genetic material, to assume their roles as the new masters of the Earth. And then the invasion would be complete.

An invasion without war and without casualties, except on the losing side. Just the silent, peaceful fall of snowflakes.

The process might have been repeated on a thousand worlds, and might be on a thousand yet to come. Wherever the comet passed, it would leave the legacy of an unknown race behind, spreading like a cancer from star to star. How many other civilisations had died in order that this one might live? How long would it be before the comet encountered a race that was able to fight back?

The creature still didn't move. To Stewart's eyes, it seemed puzzled — as though uncertain what to make of the shack and its occupant; as though its programmers had not told it how to deal with a belligerent native.

Maybe, thought Stewart, the conquering race had never encountered another civilisation anywhere in its travels. Maybe it had assumed that none such was to be found anywhere in the galaxy, and that all suitable planets were therefore fit for terraforming. Maybe the destruction of the human Earth had been a mistake. And maybe it wasn't too late, after all ...

He guessed he wouldn't have to wait long for phase three. For one wild moment, he imagined that he could survive to explain the mistake — if he rationed his food and breathed shallowly, if he could keep the snow from destroying the shack around him. There had to be others who had survived, like him, by holing up and doing nothing.

The creature chose that moment to unfold its legs and move towards him.

He backed away from the window, thinking of Gary and one of the last things the man had said:

"How do you fight *snow*?"

The answer, of course, was that you couldn't. It had taken him four days alone in the shack to come to terms with the fact, and he wasn't about to let the realisation slip through his fingers so easily.

He opened the cocks on the butane bottles and waited until the smell of hydrogen sulphide had vanished, swamped by another, more potent smell.

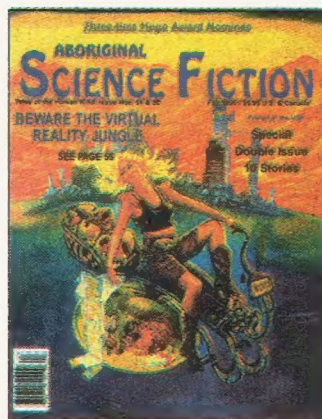
There was the sound of glass shattering in the kitchen, followed by the breaking of solid stone.

He closed his eyes and lit the cigarette. □

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